



**Fire Fighter I
Certification Preparation Guide
August, 2009**

The logo for the Wisconsin Technical College System features a blue arch at the top. Below the arch, the words "WISCONSIN", "TECHNICAL COLLEGE", and "SYSTEM" are stacked in a bold, sans-serif font.

WISCONSIN
TECHNICAL COLLEGE
SYSTEM

The mission of the Wisconsin Technical College System is to provide citizens with comprehensive technical and adult education that:

- Enables individuals to acquire the occupational education necessary for full participation and advancement in the workforce;
- Provides remedial and basic skills education to enable individuals to function as literate members of society;
- Fosters economic development through on-site training and technical assistance to business, industry, and labor.



<http://systemattic.wtcsystem.edu/Certification/fire>

The mission of Wisconsin Fire Service Training is to provide the state's fire service personnel with:

- A comprehensive education and training program in fire prevention and protection;
- Certification according to standards established by the National Fire Protection Association.

Acknowledgement

The Wisconsin Technical College System (WTCS) gratefully acknowledges the assistance of many dedicated fire service personnel during both the development and the administration of the WTCS Fire Service Training (FST) Certification Program. It would be impossible to individually recognize each and every person who has helped to make the program the resounding success that it is.

Dan Clancy, President
Annette Severson, Associate Vice President of Instruction

Recognition for their support, time and input is extended to the Wisconsin Fire Service Joint Advisory Committee Members past and present.

Special recognition for their technical expertise, time and effort is extended to the former members of the Curriculum Task Force:

Bruce Erickson	Ross Marshall	Thomas K Schlei	William Rice
Steven Krause	David A. McFadden	Robert W. Stedman	John W. Fulcher

Special recognition for their technical expertise, time and effort is also extended to the past and present members of the IFSAC Self-Study Team.

As a member of the Training Resources and Data Exchange (TRADE) of the National Fire Academy, WTCS FST is committed to fostering the ongoing exchange of ideas, programs, and curricula among and between Federal, State and local fire training organizations. Many of the publications and training materials of the WTCS FST may be freely used to aid emergency responders in any way possible. This guide is one of the aforementioned publications. We would appreciate the accompaniment of a credit line with any portion of this guide that is used indicating WTCS FST as the origin of the material. We also ask that such materials borrowed from us not be sold for profit.

Table of Contents

CERTIFICATION OVERVIEW	Page No.
a. Foreword.....	5
b. Assistance in Preparing for Certification	5
Certification Program Policy and Procedures Manual	
Fire Education and Training Consultant Information	
c. Entrance into the Wisconsin Fire Service Certification System	5
d. Application.....	1
Application Form Completion Information	
State Summary Form Completion Information	
e. Written Examination Element.....	5
Number of Questions	
Format of Instrument	
Passing Score	
Retesting	
f. Practical Skills Examination Element.....	6
Test Site Assignment	
Testing Fee	
Candidates' Responsibilities	
Number of Possible Evolutions	
Pass/fail Information	
Retesting	
g. Examination Results	6
h. Certification	7
i. Denial and Revocation of Certification	7
j. Appeal Process.....	7
l. Facial Hair/SCBA Issue.....	7
 FIRE FIGHTER I CERTIFICATION PREPARATION GUIDE	
a. Reference List.....	8
b. Self-Study Requirements and Study Hints.....	9
c. Written Exam Requirements and Study Hints.....	9
d. Practical Exam Requirements and Study Hints	9
 APPENDIX	
a. Samples of Questions Used in the Written Examination Element	56
b. Practical Skills Test Station Summary	58
c. 2008 NFPA® 472 Competencies.....	60
d. Practical Skills Test Sites List	62

Foreword

On May 23, 1978, the Wisconsin Board of Vocational, Technical and Adult Education (WBVTAE), since renamed the Wisconsin Technical College System Board (WTCSB), approved the provision of certification to the Wisconsin fire service. The WTCSB also adopted the Professional Qualifications for the Fire Service, National Fire Protection Association (NFPA) 1000 Series Standards, and any future standards of the series as those which shall be used for identifying training course content for the certification of Wisconsin fire service personnel.

Fire service certification in the state of Wisconsin is not mandated by the WTCSB. Certification is rather an endeavor to be undertaken voluntarily by individuals or by collective members of fire departments. Those who aspire to Wisconsin Fire Service Certification, however, must satisfy the program requirements which are based on the appropriate NFPA Standards, and be tested for competency.

Certification is not necessarily a means of determining who may participate in the vocation or avocation of fire fighting, but is rather a symbol of dedication and commitment by the certified individual. Certification also provides documentation that the individual has demonstrated a high level of proficiency established through national consensus.

The WTCS Fire Service Training (FST) is ready and able to assist motivated individuals and/or fire departments in achieving their training and certification goals.

Assistance in Preparing for Certification

The WTCS FST publishes a *Certification Program Policy and Procedures Manual* which lists each category and level of certification offered. These manuals contain pertinent information designed to assist candidates in preparing for the certification process. *Certification Program Policy and Procedures Manual* may be obtained from the WTCS web page:

<http://systematic.wtcsystem.org/fire/Firecert/Certprepguides.htm>.

Entrance into the Wisconsin Fire Service Certification System

Qualified individuals may enter the certification system by contacting any of the institutions of the WTCS. Upon receipt of a request, appropriate information and application materials for any of the certification categories/levels available will be forwarded. A listing of WTCS institutions and their respective fire service coordinators/supervisors can be accessed from the WTCSB web page.

Application/State Summary Form Element

All candidates seeking certification within the WTCS FST Certification System must submit completed application and state summary forms to the WTCS institution of their residency. Application and color-coded state summary forms can be obtained from the WTCS fire service coordinators/supervisors.

Written Examination Element

Approved candidates will be allowed to write the state certification examination for the category and/or level chosen. The written examination will consist of 100 questions with a 90-minute time limit. Multiple choice, true/false and matching questions can be expected. If the candidates successfully achieve a minimum score of 70 percent on the written examination,

they will advance to the practical skills examination element of the process. Candidates who received their preparatory training through the state-approved training program and who fail their initial attempt at the written examination will be allowed up to 2 retests. If still unsuccessful after their second retest, these candidates are required to re-enroll in and complete the approved training program before being allowed to again write the examination. A variety of exams will be used to insure that no candidate is allowed to take the same exam more than once. Each exam will be based on the NFPA standard, current edition, and constructed from a bank of questions maintained by WTCS FST. Individuals granted advanced standing for documented training from sources other than the state-approved training program will be allowed a one-time challenge of the written examination. If successful in the challenge, they will be scheduled for the practical skills component of the certification process; if unsuccessful, they must complete the state-approved training program before being allowed to again write the examination.

Practical Skills Examination Element

Candidates who have passed the written examination element will be assigned to a practical skills examination at an approved WTCS test site on a date of their choosing (pending availability of openings). All candidates are required to pay the standardized statewide practical skills examination fee (checks only, payable to the assigned WTCS test site).

Candidates will be responsible for all skills required by the appropriate NFPA standard, and must be prepared to perform any of the skills contained within the examination structure (a summary of the practical skills test stations is included in this document [see appendix]). Due to the large number of skills required by the standard, however, all skills cannot possibly be tested in a given examination. Rather, a number or series of skills will be selected for each exam through a random process. Skills to be tested will be selected to prevent prior knowledge by the candidates. The intent of this process is to insure that candidates are prepared to test on all of the skills required by the standard. Each candidate must perform a total of 8 evolutions contained within the Fire Fighter I examination structure, either individually or as a member of a team.

Practical examinations are graded on a 100 percent pass/fail basis. Throughout the design of the evaluation checklists, critical components of the skills will be strictly evaluated. “Non-fatal” components and many “local issue” components that vary from fire department to fire department will not be critically evaluated during the examination.

Candidates must successfully complete all skills stations of an examination to receive a passing grade. Candidates who fail up to 2 stations may retest on the same day at no additional cost. Such retests will be conducted only after all other candidates have completed their examinations. If, after retesting, the candidates fail the station(s) again, they must retake the entire examination at a later date. Candidates who fail 3 or more stations on their initial examination attempt must retake the entire examination at a later date as well. This requirement is necessitated by the random examination skills selection process. Such retakes also require payment of another examination fee.

Examination Results

Candidates will be notified of certification examination results upon examination completion.

Certification

Upon successful completion of all elements of the certification process, the candidate's name will be entered into the WTCS FST Certification database. Individuals will also receive, at no additional cost, an individualized certificate from the WTCS FST.

Denial and Revocation of Certification

The WTCS FST will deny or revoke certification if the individual(s):

- Knowingly submits false information to the WTCS FST.
- Cheats during the examination process.

Appeal Process

If certification is denied or revoked, the individual is entitled to due process, including appeal and hearing. The entire appeal process is listed in the WTCS FST *Certification Program Policy and Procedures Manual*.

Wisconsin Fire Service Certification Program

Practical Skills Element

Facial Hair/SCBA Issue

An excerpt from WTCSB *Administrative Bulletin 99-16*, issued January 21, 2000, states the following:

- In any fire training course where instruction includes the use of a self-contained breathing apparatus (SCBA), the district may enroll and shall provide a plan of instruction to accommodate students with a condition that interferes with the facepiece seal.
- Students who are unable to meet all requirements of the SCBA portion of CERTIFIED FIRE FIGHTER courses will not be eligible for "state certification," however, they will receive a technical college certificate for participation in the fire training course.

National Fire Protection Association (NFPA) 1500, *Standard on Fire Department Occupational Safety and Health Program*, 1997 Edition, states, "members who have a beard or facial hair at any point where the SCBA facepiece is designed to seal with the face, or hair that could interfere with the operation of the unit, shall not be permitted to use respiratory protection at emergency incidents or in hazardous or potentially hazardous atmospheres. These restrictions shall apply regardless of the specific fit test measurement that can be obtained under test conditions."

Wisconsin Administrative Code, Department of Commerce, Chapter Comm 30, *Fire Department Safety and Health* states, "Comm 30.12, self-contained breathing apparatus. A fire fighter may not wear a beard or facial hair that comes in contact with a facepiece seal if the fire fighter's duties require him or her to use a self-contained breathing apparatus."

Administrative Bulletin AB 99-16 addresses the facial hair/SCBA issue during the training phase only. It is the policy of the WTCS, FST that the facial hair requirements of NFPA Standard 1500 and Comm 30 shall be followed in certification practical skills examinations which contain a

SCBA use requirement. As such, individuals who report for examinations with a beard or facial hair that interferes with SCBA facepiece seal shall not be allowed to participate in the examination.

Fire Fighter I Certification Preparation Guide

This document is provided to assist candidates as they ready themselves to enter the WTCS FST Fire Fighter I Certification Process.

The NFPA 1001, *Standard for Fire Fighter Professional Qualifications*, 2008 Edition (hereinafter referred to as "*Standard for Fire Fighter Professional Qualifications*, current edition"), Fire Fighter I JPRs are listed in the left column. The right column contains information that will help candidates identify study resources or other notes on how to prepare for the examination elements.

The JPRs of NFPA 1001, current edition, Fire Fighter I that must be met for certification are divided into four (4) elements. These elements are: State Summary Form; Self-Study; Written Examination; and Practical Skills Examination.

The primary reference material for meeting certification requirements is the International Fire Service Training Association (IFSTA) *Essentials of Fire Fighting*, 5th Edition (hereinafter referred to as "*IFSTA Essentials of Fire Fighting*, current edition"), the accompanying student applications package, and *Hazardous Materials for First Responders*, 3rd edition (hereinafter referred to as "*Hazardous Materials of First Responders*, current edition"), IFSTA. The IFSTA *Essentials of Fire Fighting*, current edition, however, may not address many items in-depth. Additional reference materials candidates should consider include:

- *Emergency Response Guidebook*, current edition, U. S. Department of Transportation
- *Standard on Fire Fighter Professional Qualifications*, NFPA 1001, 2008 Edition, National Fire Protection Association.
- NFPA 472, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, 2008 Edition.
- IFSTA, NFPA 2008 NFPA 472 Competencies

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 1001, Fire Fighter I, current edition
IFSTA 5th Edition Curriculum**

<u>JPR's</u>	<u>Chapter References</u>	<u>Page References</u>
<p>5.1 General: For qualification at Level I, the fire fighter candidate shall meet the general knowledge requirements in 5.1.1; the general skill requirements in 5.1.2; the JPRs defined in Sections 5.2 through 5.5 of this standard; and the requirements defined in Chapter 5, Core Competencies for Operations Level Responders, and Section 6.6, Mission-Specific Competencies: Product Control, of NFPA 472, Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents.</p>		
<p>5.1.1 General Knowledge Requirements: The organization of the fire department; the role of the Fire Fighter I in the organization; the mission of fire service; the fire department's standard operating procedures (SOPs) and rules and regulations as they apply to the Fire Fighter I; the role of other agencies as they relate to the fire department; aspects of the fire department's member assistance program; the importance of physical fitness and a healthy lifestyle to the performance of the duties of a fire fighter; the critical aspects of NFPA 1500, Standard on Fire Department Occupational Safety and Health Program, as they apply to the Fire Fighter I; knot types and usage; the difference between life safety and utility rope; reasons for placing rope out of service; the types of knots to use for given tools, ropes, or situations; hoisting methods for tools and equipment; and using rope to support response activities.</p>	Chapters 1, 2, 5, 7, 18	Pages 14-34, 40-43, 59-78, 167-180, 263-283, 910
<p>5.1.2 General Skill Requirements: The ability to don personal protective clothing within 1 minute; doff personal protective clothing and prepare for reuse; hoist tools and equipment using ropes and the correct knot; and locate information in departmental documents and standard or code materials.</p>	Chapters 5, 7	Pages 167-180, 200-205, 263-283

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 1001, Fire Fighter I, current edition
IFSTA 5th Edition Curriculum**

5.2 Fire Department Communications: This duty shall involve initiating responses, receiving telephone calls, and using fire department communications equipment to correctly relay verbal or written information, according to the JPRs in 5.2.1 through 5.2.3.		
5.2.1 Initiate the response to a reported emergency, given the report of an emergency, fire department SOPs, and communications equipment, so that all necessary information is obtained, communications equipment is operated correctly, and the information is relayed promptly and accurately to the dispatch center. <u>(A) Requisite Knowledge.</u> Procedures for reporting an emergency, departmental SOPs for taking and receiving alarms, radio codes or procedures, and information needs of dispatch center. <u>(B) Requisite Skills.</u> The ability to operate fire department communications equipment, relay information, and record information.	Chapter 19	Pages 926-941
5.2.2 Receive a telephone call, given a fire department phone, so that procedures for answering the phone are used and the caller's information is relayed. <u>(A) Requisite Knowledge.</u> Fire department procedures for answering nonemergency telephone calls. <u>(B) Requisite Skills.</u> The ability to operate fire station telephone and intercom equipment.	Chapter 19	Page 936
5.2.3 Transmit and receive messages via the fire department radio, given a fire department radio and operating procedures, so that the information is accurate, complete, clear, and relayed within the time established by the AHJ. <u>(A) Requisite Knowledge.</u> Departmental radio procedures and etiquette for routine traffic, emergency traffic, and emergency evacuation signals. <u>(B) Requisite Skills.</u> The ability to operate radio equipment and discriminate between routine and emergency traffic.	Chapter 19	Pages 943-949

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 1001, Fire Fighter I, current edition
IFSTA 5th Edition Curriculum**

<p>5.3 Fireground Operations: This duty shall involve performing activities necessary to ensure life safety, fire control, and property conservation, according to the JPRs in 5.3.1 through 5.3.19.</p>		
<p>5.3.1 Use self-contained breathing apparatus (SCBA) during emergency operations, given SCBA and other personal protective equipment, so that the SCBA is correctly donned and activated within 1 minute, the SCBA is correctly worn, controlled breathing techniques are used, emergency procedures are enacted if the SCBA fails, all low-air warnings are recognized, respiratory protection is not intentionally compromised, and hazardous areas are exited prior to air depletion.</p> <p><u>(A) Requisite Knowledge.</u> Conditions that require respiratory protection, uses and limitations of SCBA, components of SCBA, donning procedures, breathing techniques, indications for and emergency procedures used with SCBA, and physical requirements of the SCBA wearer.</p> <p><u>(B) Requisite Skills.</u> The ability to control breathing, replace SCBA air cylinders, use SCBA to exit through restricted passages, initiate and complete emergency procedures in the event of SCBA failure or air depletion, and complete donning procedures.</p>	Chapter 5	Pages 180-205, 207-212
<p>5.3.2 Respond on apparatus to an emergency scene, given personal protective clothing and other necessary personal protective equipment, so that the apparatus is correctly mounted and dismounted, seat belts are used while the vehicle is in motion, and other personal protective equipment is correctly used.</p> <p><u>(A) Requisite Knowledge.</u> Mounting and dismounting procedures for riding fire apparatus, hazards and ways to avoid hazards associated with riding apparatus, prohibited practices, and types of department personal protective equipment and the means for usage.</p> <p><u>(B) Requisite Skills.</u> The ability to use each piece of provided safety equipment.</p>	Chapter 2	Pages 53-54

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 1001, Fire Fighter I, current edition
IFSTA 5th Edition Curriculum**

<p>5.3.3 Establish and operate in work areas at emergency scenes, given protective equipment, traffic and scene control devices, structure fire and roadway emergency scenes, traffic hazards and downed electrical wires, an assignment, and SOPs, so that procedures are followed, protective equipment is worn, protected work areas are established as directed using traffic and scene control devices, and the fire fighter performs assigned tasks only in established, protected work areas.</p> <p>(A) Requisite Knowledge. Potential hazards involved in operating on emergency scenes including vehicle traffic, utilities, and environmental conditions; proper procedures for dismounting apparatus in traffic; procedures for safe operation at emergency scenes; and the protective equipment available for members' safety on emergency scenes and work zone designations.</p> <p>(B) Requisite Skills. The ability to use personal protective clothing, deploy traffic and scene control devices, dismount apparatus, and operate in the protected work areas as directed.</p>	Chapter 2	Pages 53-54, 69-78
<p>5.3.4 Force entry into a structure, given personal protective equipment, tools, and an assignment, so that the tools are used as designed, the barrier is removed, and the opening is in a safe condition and ready for entry.</p> <p>(A) Requisite Knowledge. Basic construction of typical doors, windows, and walls within the department's community or service area; operation of doors, windows, and locks; and the dangers associated with forcing entry through doors, windows, and walls.</p> <p>(B) Requisite Skills. The ability to transport and operate hand and power tools and to force entry through doors, windows, and walls using assorted methods and tools.</p>	Chapters 4, 9	Pages 141-150, 397-450

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 1001, Fire Fighter I, current edition
IFSTA 5th Edition Curriculum**

<p>5.3.5 Exit a hazardous area as a team, given vision-obscured conditions, so that a safe haven is found before exhausting the air supply, others are not endangered, and the team integrity is maintained.</p> <p><u>(A) Requisite Knowledge.</u> Personnel accountability systems, communication procedures, emergency evacuation methods, what constitutes a safe haven, elements that create or indicate a hazard, and emergency procedures for loss of air supply.</p> <p><u>(B) Requisite Skills.</u> The ability to operate as a team member in vision-obscured conditions, locate and follow a guideline, conserve air supply, and evaluate areas for hazards and identify a safe haven.</p>	Chapters 2, 5, 8	Pages 69-78, 180-200, 207-212, 319-327
<p>5.3.6 Set up ground ladders, given single and extension ladders, an assignment, and team members if needed, so that hazards are assessed, the ladder is stable, the angle is correct for climbing, extension ladders are extended to the necessary height with the fly locked, the top is placed against a reliable structural component, and the assignment is accomplished.</p> <p><u>(A) Requisite Knowledge.</u> Parts of a ladder, hazards associated with setting up ladders, what constitutes a stable foundation for ladder placement, different angles for various tasks, safety limits to the degree of angulation, and what constitutes a reliable structural component for top placement.</p> <p><u>(B) Requisite Skills.</u> The ability to carry ladders, raise ladders, extend ladders and lock flies, determine that a wall and roof will support the ladder, judge extension ladder height requirements, and place the ladder to avoid obvious hazards.</p>	Chapter 10	Pages 471-507

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 1001, Fire Fighter I, current edition
IFSTA 5th Edition Curriculum**

<p>5.3.7 Attack a passenger vehicle fire operating as a member of a team, given personal protective equipment, attack line, and hand tools, so that hazards are avoided, leaking flammable liquids are identified and controlled, protection from flash fires is maintained, all vehicle compartments are overhauled, and the fire is extinguished.</p> <p><u>(A) Requisite Knowledge.</u> Principles of fire streams as they relate to fighting automobile fires; precautions to be followed when advancing hose lines toward an automobile; observable results that a fire stream has been properly applied; identifying alternative fuels and the hazards associated with them; dangerous conditions created during an automobile fire; common types of accidents or injuries related to fighting automobile fires and how to avoid them; how to access locked passenger, trunk, and engine compartments; and methods for overhauling an automobile.</p> <p><u>(B) Requisite Skills.</u> The ability to identify automobile fuel type; assess and control fuel leaks; open, close, and adjust the flow and pattern on nozzles; apply water for maximum effectiveness while maintaining flash fire protection; advance 38 mm (1½ in.) or larger diameter attack lines; and expose hidden fires by opening all automobile compartments.</p>	Chapter 15	Pages 796-799
---	------------	---------------

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 1001, Fire Fighter I, current edition
IFSTA 5th Edition Curriculum**

<p>5.3.8 Extinguish fires in exterior Class A materials, given fires in stacked or piled and small unattached structures or storage containers that can be fought from the exterior, attack lines, hand tools and master stream devices, and an assignment, so that exposures are protected, the spread of fire is stopped, collapse hazards are avoided, water application is effective, the fire is extinguished, and signs of the origin area(s) and arson are preserved.</p> <p><u>(A) Requisite Knowledge.</u> Types of attack lines and water streams appropriate for attacking stacked, piled materials and outdoor fires; dangers — such as collapse — associated with stacked and piled materials; various extinguishing agents and their effect on different material configurations; tools and methods to use in breaking up various types of materials; the difficulties related to complete extinguishment of stacked and piled materials; water application methods for exposure protection and fire extinguishment; dangers such as exposure to toxic or hazardous materials associated with storage building and container fires; obvious signs of origin and cause; and techniques for the preservation of fire cause evidence.</p> <p><u>(B) Requisite Skills.</u> The ability to recognize inherent hazards related to the material's configuration, operate handlines or master streams, break up material using hand tools and water streams, evaluate for complete extinguishment, operate hose lines and other water application devices, evaluate and modify water application for maximum penetration, search for and expose hidden fires, assess patterns for origin determination, and evaluate for complete extinguishment.</p>	Chapters 3, 15, 18	Pages 130-132, 769-772, 799, 912-914, 918
--	--------------------	---

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 1001, Fire Fighter I, current edition
IFSTA 5th Edition Curriculum**

<p>5.3.9 Conduct a search and rescue in a structure operating as a member of a team, given an assignment, obscured vision conditions, personal protective equipment, a flashlight, forcible entry tools, hose lines, and ladders when necessary, so that ladders are correctly placed when used, all assigned areas are searched, all victims are located and removed, team integrity is maintained, and team members' safety — including respiratory protection — is not compromised.</p> <p><u>(A) Requisite Knowledge.</u> Use of forcible entry tools during rescue operations, ladder operations for rescue, psychological effects of operating in obscured conditions and ways to manage them, methods to determine if an area is tenable, primary and secondary search techniques, team members' roles and goals, methods to use and indicators of finding victims, victim removal methods (including various carries), and considerations related to respiratory protection.</p> <p><u>(B) Requisite Skills.</u> The ability to use SCBA to exit through restricted passages, set up and use different types of ladders for various types of rescue operations, rescue a fire fighter with functioning respiratory protection, rescue a fire fighter whose respiratory protection is not functioning, rescue a person who has no respiratory protection, and assess areas to determine tenability.</p>	Chapters 5, 8, 10	Pages 207-212, 306-330, 490-494, 505-506
---	-------------------	--

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 1001, Fire Fighter I, current edition
IFSTA 5th Edition Curriculum**

<p>5.3.10 Attack an interior structure fire operating as a member of a team, given an attack line, ladders when needed, personal protective equipment, tools, and an assignment, so that team integrity is maintained, the attack line is deployed for advancement, ladders are correctly placed when used, access is gained into the fire area, effective water application practices are used, the fire is approached correctly, attack techniques facilitate suppression given the level of the fire, hidden fires are located and controlled, the correct body posture is maintained, hazards are recognized and managed, and the fire is brought under control.</p> <p><u>(A) Requisite Knowledge.</u> Principles of fire streams; types, design, operation, nozzle pressure effects, and flow capabilities of nozzles; precautions to be followed when advancing hose lines to a fire; observable results that a fire stream has been properly applied; dangerous building conditions created by fire; principles of exposure protection; potential long-term consequences of exposure to products of combustion; physical states of matter in which fuels are found; common types of accidents or injuries and their causes; and the application of each size and type of attack line, the role of the backup team in fire attack situations, attack and control techniques for grade level and above and below grade levels, and exposing hidden fires.</p> <p><u>(B) Requisite Skills.</u> The ability to prevent water hammers when shutting down nozzles; open, close, and adjust nozzle flow and patterns; apply water using direct, indirect, and combination attacks; advance charged and uncharged 38 mm (1½ in.) diameter or larger hose lines up ladders and up and down interior and exterior stairways; extend hose lines; replace burst hose sections; operate charged hose lines of 38 mm (1½ in.) diameter or larger while secured to a ground ladder; couple and uncouple various handline connections; carry hose; attack fires at grade level and above and below grade levels; and locate and suppress interior wall and subfloor fires.</p>	Chapters 3, 4, 13, 14, 15, 17	Pages 86-112, 130-132, 152-158, 633-634, 671-680, 718-733
---	-------------------------------	---

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 1001, Fire Fighter I, current edition
IFSTA 5th Edition Curriculum**

<p>5.3.11 Perform horizontal ventilation on a structure operating as part of a team, given an assignment, personal protective equipment, ventilation tools, equipment, and ladders, so that the ventilation openings are free of obstructions, tools are used as designed, ladders are correctly placed, ventilation devices are correctly placed, and the structure is cleared of smoke.</p> <p><u>(A) Requisite Knowledge.</u> The principles, advantages, limitations, and effects of horizontal, mechanical, and hydraulic ventilation; safety considerations when venting a structure; fire behavior in a structure; the products of combustion found in a structure fire; the signs, causes, effects, and prevention of backdrafts; and the relationship of oxygen concentration to life safety and fire growth.</p> <p><u>(B) Requisite Skills.</u> The ability to transport and operate ventilation tools and equipment and ladders, and to use safe procedures for breaking window and door glass and removing obstructions.</p>	Chapters 3, 10, 11	Pages 86-130, 481-487, 541-579
--	--------------------	--------------------------------

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 1001, Fire Fighter I, current edition
IFSTA 5th Edition Curriculum**

<p>5.3.12 Perform vertical ventilation on a structure as part of a team, given an assignment, personal protective equipment, ground and roof ladders, and tools, so that ladders are positioned for ventilation, a specified opening is created, all ventilation barriers are removed, structural integrity is not compromised, products of combustion are released from the structure, and the team retreats from the area when ventilation is accomplished.</p> <p><u>(A) Requisite Knowledge.</u> The methods of heat transfer; the principles of thermal layering within a structure on fire; the techniques and safety precautions for venting flat roofs, pitched roofs, and basements; basic indicators of potential collapse or roof failure; the effects of construction type and elapsed time under fire conditions on structural integrity; and the advantages and disadvantages of vertical and trench/strip ventilation.</p> <p><u>(B) Requisite Skills.</u> The ability to transport and operate ventilation tools and equipment; hoist ventilation tools to a roof; cut roofing and flooring materials to vent flat roofs, pitched roofs, and basements; sound a roof for integrity; clear an opening with hand tools; select, carry, deploy, and secure ground ladders for ventilation activities; deploy roof ladders on pitched roofs while secured to a ground ladder; and carry ventilation-related tools and equipment while ascending and descending ladders.</p>	Chapters 3, 4, 10, 11	Pages 112-132, 151-158, 481-494, 498-500, 501-505, 541-579
--	-----------------------	--

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 1001, Fire Fighter I, current edition
IFSTA 5th Edition Curriculum**

<p>5.3.13 Overhaul a fire scene, given personal protective equipment, attack line, hand tools, a flashlight, and an assignment, so that structural integrity is not compromised, all hidden fires are discovered, fire cause evidence is preserved, and the fire is extinguished.</p> <p><u>(A) Requisite Knowledge.</u> Types of fire attack lines and water application devices most effective for overhaul, water application methods for extinguishment that limit water damage, types of tools and methods used to expose hidden fire, dangers associated with overhaul, obvious signs of area of origin or signs of arson, and reasons for protection of fire scene.</p> <p><u>(B) Requisite Skills.</u> The ability to deploy and operate an attack line; remove flooring, ceiling, and wall components to expose void spaces without compromising structural integrity; apply water for maximum effectiveness; expose and extinguish hidden fires in walls, ceilings, and subfloor spaces; recognize and preserve obvious signs of area of origin and arson; and evaluate for complete extinguishment.</p>	Chapters 17, 18	Pages 882-886, 912-914, 918
---	-----------------	-----------------------------

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 1001, Fire Fighter I, current edition
IFSTA 5th Edition Curriculum**

<p>5.3.14 Conserve property as a member of a team, given salvage tools and equipment and an assignment, so that the building and its contents are protected from further damage.</p> <p><u>(A) Requisite Knowledge.</u> The purpose of property conservation and its value to the public, methods used to protect property, types of and uses for salvage covers, operations at properties protected with automatic sprinklers, how to stop the flow of water from an automatic sprinkler head, identification of the main control valve on an automatic sprinkler system, and forcible entry issues related to salvage.</p> <p><u>(B) Requisite Skills.</u> The ability to cluster furniture; deploy covering materials; roll and fold salvage covers for reuse; construct water chutes and catch-alls; remove water; cover building openings, including doors, windows, floor openings, and roof openings; separate, remove, and relocate charred material to a safe location while protecting the area of origin for cause determination; stop the flow of water from a sprinkler with sprinkler wedges or stoppers; and operate a main control valve on an automatic sprinkler system.</p>	Chapters 16, 17	Pages 842-857, 867-882
<p>5.3.15 Connect a fire department pumper to a water supply as a member of a team, given supply or intake hose, hose tools, and a fire hydrant or static water source, so that connections are tight and water flow is unobstructed.</p> <p><u>(A) Requisite Knowledge.</u> Loading and off-loading procedures for mobile water supply apparatus; fire hydrant operation; and suitable static water supply sources, procedures, and protocol for connecting to various water sources.</p> <p><u>(B) Requisite Skills.</u> The ability to hand lay a supply hose, connect and place hard suction hose for drafting operations, deploy portable water tanks as well as the equipment necessary to transfer water between and draft from them, make hydrant-to-pumper hose connections for forward and reverse lays, connect supply hose to a hydrant, and fully open and close the hydrant.</p>	Chapter 12	Pages 594-616

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 1001, Fire Fighter I, current edition
IFSTA 5th Edition Curriculum**

<p>5.3.16 Extinguish incipient Class A, Class B, and Class C fires, given a selection of portable fire extinguishers, so that the correct extinguisher is chosen, the fire is completely extinguished, and correct extinguisher-handling techniques are followed.</p> <p><u>(A) Requisite Knowledge.</u> The classifications of fire; the types of, rating systems for, and risks associated with each class of fire; and the operating methods of and limitations of portable extinguishers.</p> <p><u>(B) Requisite Skills.</u> The ability to operate portable fire extinguishers, approach fire with portable fire extinguishers, select an appropriate extinguisher based on the size and type of fire, and safely carry portable fire extinguishers.</p>	Chapters 3, 6, 15	Pages 110-112, 234-254, 780-787
<p>5.3.17 Illuminate the emergency scene, given fire service electrical equipment and an assignment, so that designated areas are illuminated and all equipment is operated within the manufacturer's listed safety precautions.</p> <p><u>(A) Requisite Knowledge.</u> Safety principles and practices, power supply capacity and limitations, and light deployment methods.</p> <p><u>(B) Requisite Skills.</u> The ability to operate department power supply and lighting equipment, deploy cords and connectors, reset ground-fault interrupter (GFI) devices, and locate lights for best effect.</p>	Chapters 2, 8	Pages 65-67, 530-532
<p>5.3.18 Turn off building utilities, given tools and an assignment, so that the assignment is safely completed.</p> <p><u>(A) Requisite Knowledge.</u> Properties, principles, and safety concerns for electricity, gas, and water systems; utility disconnect methods and associated dangers; and use of required safety equipment.</p> <p><u>(B) Requisite Skills.</u> The ability to identify utility control devices, operate control valves or switches, and assess for related hazards.</p>	Chapter 15	Pages 778-787

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 1001, Fire Fighter I, current edition
IFSTA 5th Edition Curriculum**

<p>5.3.19 Combat a ground cover fire operating as a member of a team, given protective clothing, SCBA if needed, hose lines, extinguishers or hand tools, and an assignment, so that threats to property are reported, threats to personal safety are recognized, retreat is quickly accomplished when warranted, and the assignment is completed.</p> <p><u>(A) Requisite Knowledge.</u> Types of ground cover fires, parts of ground cover fires, methods to contain or suppress, and safety principles and practices.</p> <p><u>(B) Requisite Skills.</u> The ability to determine exposure threats based on fire spread potential, protect exposures, construct a fire line or extinguish with hand tools, maintain integrity of established fire lines, and suppress ground cover fires using water.</p>	Chapter 15	Pages 800-806
<p>5.5 Prevention, Preparedness, Maintenance. This duty shall involve performing activities that reduce the loss of life and property due to fire through response readiness, according to the JPRs in 5.5.1 and 5.5.2.</p>		
<p>5.5.1 Clean and check ladders, ventilation equipment, SCBA, ropes, salvage equipment, and hand tools, given cleaning tools, cleaning supplies, and an assignment, so that equipment is clean and maintained according to manufacturer's or departmental guidelines, maintenance is recorded, and equipment is placed in a ready state or reported otherwise.</p> <p><u>(A) Requisite Knowledge.</u> Types of cleaning methods for various tools and equipment, correct use of cleaning solvents, and manufacturer's or departmental guidelines for cleaning equipment and tools.</p> <p><u>(B) Requisite Skills.</u> The ability to select correct tools for various parts and pieces of equipment, follow guidelines, and complete recording and reporting procedures.</p>	Chapters 5, 7, 9, 10, 17	Pages 205-207, 272, 411-413, 479-481, 873

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 1001, Fire Fighter I, current edition
IFSTA 5th Edition Curriculum**

<p>5.5.2 Clean, inspect, and return fire hose to service, given washing equipment, water, detergent, tools, and replacement gaskets, so that damage is noted and corrected, the hose is clean, and the equipment is placed in a ready state for service.</p> <p><u>(A) Requisite Knowledge.</u> Departmental procedures for noting a defective hose and removing it from service, cleaning methods, and hose rolls and loads.</p> <p><u>(B) Requisite Skills.</u> The ability to clean different types of hose, operate hose washing and drying equipment, mark defective hose, and replace coupling gaskets, roll hose, and reload hose.</p>	Chapter 13	Pages 634-642, 653-663, 680-682
--	------------	---------------------------------

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 472, Current Edition
Hazardous Materials For First Responders, Third Edition
AWARENESS**

<u>JPR's</u>	<u>Chapter References</u>	<u>Page References</u>
4.1 General		
4.1.1 Introduction		
4.1.1.1 Awareness level personnel shall be persons who, in the course of their normal duties, could encounter an emergency involving hazardous materials/weapons of mass destruction (WMD) and who are expected to recognize the presence of the hazardous materials/WMD, protect themselves, call for trained personnel, and secure the area.		
4.1.1.2 Awareness level personnel shall be trained to meet all competencies of this chapter.	Chapter 1	Pages 11-12
4.1.1.3 Awareness level personnel shall receive additional training to meet applicable governmental occupational health and safety regulations.	Chapter 1	Pages 11-12
4.1.2 Goal		
4.1.2.1 The goal of the competencies at the awareness level shall be to provide personnel already on the scene of a hazardous materials/WMD incident with the knowledge and skills to perform the tasks in 4.1.2.2 safely and effectively.	Chapter 1	Pages 12-13
4.1.2.2 When already on the scene of a hazardous materials/WMD incident, the awareness level personnel shall be able to perform the following tasks:		

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 472, Current Edition
Hazardous Materials For First Responders, Third Edition
AWARENESS**

<p>(1) Analyze the incident to determine both the hazardous material/WMD present and the basic hazard and response information for each hazardous material/WMD agent by completing the following tasks:</p> <p>(a) Detect the presence of hazardous materials/WMD.</p> <p>(b) Survey a hazardous materials/WMD incident from a safe location to identify the name, UN/NA identification number, type of placard, or other distinctive marking applied for the hazardous materials/WMD involved.</p> <p>(c) Collect hazard information from the current edition of the DOT Emergency Response Guidebook.</p>	Chapter 3	Pages 95-108
<p>(2) Implement actions consistent with the emergency response plan, the standard operating procedures, and the current edition of the DOT Emergency Response Guidebook by completing the following tasks:</p> <p>(a) Initiate protective actions.</p> <p>(b) Initiate the notification process.</p>	Chapter 5	Pages 284-286
4.2 Competencies — Analyzing the Incident		
4.2.1 Detecting the Presence of Hazardous Materials/WMD. Given examples of various situations, awareness level personnel shall identify those situations where hazardous materials/WMD are present and shall meet the following requirements:	Chapters 1 and 3	Pages 9-10, 95-108
4.2.1(1) Identify the definitions of both hazardous material (or dangerous goods, in Canada) and WMD.	Chapter 1	Pages 17-32
4.2.1(2) Identify the UN/DOT hazard classes and divisions of hazardous materials/WMD and identify common examples of materials in each hazard class or division.	Chapter 3	Pages 158-160

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 472, Current Edition
Hazardous Materials For First Responders, Third Edition
AWARENESS**

4.2.1(3) Identify the primary hazards associated with each UN/DOT hazard class and division.	Chapters 2 and 3	Pages 58-61, 158-160
4.2.1(4) Identify the difference between hazardous materials/WMD incidents and other emergencies.	Chapter 2	Page 45
4.2.1(5) Identify typical occupancies and locations in the community where hazardous materials/WMD are manufactured, transported, stored, used, or disposed of.	Chapter 3	Pages 112-113
4.2.1(6) Identify typical container shapes that can indicate the presence of hazardous materials/WMD.	Chapter 3	Page 14
4.2.1(7) Identify facility and transportation markings and colors that indicate hazardous materials/WMD, including the following: (a) Transportation markings, including UN/NA identification number marks, marine pollutant mark, elevated temperature (HOT) mark, commodity marking, and inhalation hazard mark (b) NFPA 704, Standard System for the Identification of the Hazards of Materials for Emergency Response, markings (c) Military hazardous materials/WMD markings (d) Special hazard communication markings for each hazard class (e) Pipeline markings (f) Container markings	Chapter 3	Pages 95-108 Pages: (a) 156-158, 169-172 (b) 184-187 (c) 194-195 (d) 187 (e) 195-200 (f) 183-184
4.2.1(8) Given an NFPA 704 marking, describe the significance of the colors, numbers, and special symbols.	Chapter 3	Pages 184-187
4.2.1(9) Identify U.S. and Canadian placards and labels that indicate hazardous materials/WMD.	Chapter 3	Pages 95-108, 158, 160-169, 172-178, 187-194

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 472, Current Edition
Hazardous Materials For First Responders, Third Edition
AWARENESS**

<p>4.2.1(10) Identify the following basic information on material safety data sheets (MSDS) and shipping papers for hazardous materials:</p> <p>(a) Identify where to find MSDS. (b) Identify major sections of an MSDS. (c) Identify the entries on shipping papers that indicate the presence of hazardous materials. (d) Match the name of the shipping papers found in transportation (air, highway, rail, and water) with the mode of transportation. (e) Identify the person responsible for having the shipping papers in each mode of transportation. (f) Identify where the shipping papers are found in each mode of transportation. (g) Identify where the papers can be found in an emergency in each mode of transportation.</p>	Chapter 3	Pages: (a) 205-207 (b) 205-208 (c) 203-205 (d) 203-205 (e) 203-205 (f) 203-205 (g) 203-205
<p>4.2.1(11) Identify examples of clues (other than occupancy/ location, container shape, markings/color, placards/ labels, MSDS, and shipping papers) the sight, sound, and odor of which indicate hazardous materials/WMD.</p>	Chapter 3	Pages 216-218
<p>4.2.1(12) Describe the limitations of using the senses in determining the presence or absence of hazardous materials/WMD.</p>	Chapter 3	Pages 216-218
<p>4.2.1(13) Identify at least four types of locations that could be targets for criminal or terrorist activity using hazardous materials/WMD.</p>	Chapter 9	Pages 445-447
<p>4.2.1(14) Describe the difference between a chemical and a biological incident.</p>	Chapter 9	Pages 447-449, 458-460
<p>4.2.1(15) Identify at least four indicators of possible criminal or terrorist activity involving chemical agents.</p>	Chapter 9	Pages 458-460
<p>4.2.1(16) Identify at least four indicators of possible criminal or terrorist activity involving biological agents.</p>	Chapter 9	Pages 447-449

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 472, Current Edition
Hazardous Materials For First Responders, Third Edition
AWARENESS**

4.2.1(17) Identify at least four indicators of possible criminal or terrorist activity involving radiological agents.	Chapter 9	Pages 454-458
4.2.1(18) Identify at least four indicators of possible criminal or terrorist activity involving illicit laboratories (clandestine laboratories, weapons lab, ricin lab).	Chapter 9	Pages 486-495
4.2.1(19) Identify at least four indicators of possible criminal or terrorist activity involving explosives.	Chapter 9	Pages 476-486
4.2.1(20) Identify at least four indicators of secondary devices.	Chapter 9	Pages 479, 497-498
4.2.2 Surveying Hazardous Materials/WMD Incidents. Given examples of hazardous materials/WMD incidents, awareness level personnel shall, from a safe location, identify the hazardous material(s)/WMD involved in each situation by name, UN/NA identification number, or type placard applied and shall meet the following requirements:	Chapter 3	Pages 95-108
(1) Identify difficulties encountered in determining the specific names of hazardous materials/WMD at facilities and in transportation.	Chapter 3	Page 221
(2) Identify sources for obtaining the names of, UN/NA identification numbers for, or types of placard associated with hazardous materials/WMD in transportation.	Chapter 3	Page 157
(3) Identify sources for obtaining the names of hazardous materials/WMD at a facility.	Chapter 3	Pages 202-203
4.2.3 Collecting Hazard Information. Given the identity of various hazardous materials/WMD (name, UN/NA identification number, or type placard), awareness level personnel shall identify the fire, explosion, and health hazard information for each material by using the current edition of the DOT Emergency Response Guidebook and shall meet the following requirements:	Chapter 3	Pages 208-211

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 472, Current Edition
Hazardous Materials For First Responders, Third Edition
AWARENESS**

(1) Identify the three methods for determining the guidebook page for a hazardous material/WMD.	Chapter 3	Pages 208-211
(2) Identify the two general types of hazards found on each guidebook page.	Chapter 3	Pages 211-214
4.4 Competencies – Implementing the Planned Response.		
4.4.1 Initiating Protective Actions. Given examples of hazardous materials/WMD incidents, the emergency response plan, the standard operating procedures, and the current edition of the DOT Emergency Response Guidebook, awareness level personnel shall be able to identify the actions to be taken to protect themselves and others and to control access to the scene and shall meet the following requirements:	Chapter 5	Pages 280, 290
4.4.1(1) Identify the location of both the emergency response plan and/or standard operating procedures.	Chapters 3 and 4	Pages 111, 240-241
4.4.1(2) Identify the role of the awareness level personnel during hazardous materials/WMD incidents.	Chapter 1	Pages 12-13
4.4.1(3) Identify the following basic precautions to be taken to protect themselves and others in hazardous materials/WMD incidents: (a) Identify the precautions necessary when providing emergency medical care to victims of hazardous materials/WMD incidents. (b) Identify typical ignition sources found at the scene of hazardous materials/WMD incidents. (c) Identify the ways hazardous materials/WMD are harmful to people, the environment, and property. (d) Identify the general routes of entry for human exposure to hazardous materials/WMD.	Chapters 2 and 5	Page 280 Pages: (a) 286 (b) 49 (c) 45-68, 70-71, 86-88 (d) 71-73

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 472, Current Edition
Hazardous Materials For First Responders, Third Edition
AWARENESS**

4.4.1(4) Given examples of hazardous materials/WMD and the identity of each hazardous material/WMD (name, UN/NA identification number, or type placard), identify the following response information: (a) Emergency action (fire, spill, or leak and first aid) (b) Personal protective equipment necessary (c) Initial isolation and protective action distances	Chapter 3	Pages: (a) 211-214 (b) 211-214 (c) 211-214, 214-216
4.4.1(5) Given the name of a hazardous material, identify the recommended personal protective equipment from the following list: (a) Street clothing and work uniforms (b) Structural fire-fighting protective clothing (c) Positive pressure self-contained breathing apparatus (d) Chemical-protective clothing and equipment	Chapters 3 and 6	Pages 211-214 Pages: (a) 352 (b) 327-328 (c) 335 (d) 328-331
4.4.1(6) Identify the definitions for each of the following protective actions: (a) Isolation of the hazard area and denial of entry (b) Evacuation (c) Sheltering in-place	Chapter 5	Pages: (a) 280 (b) 290 (c) 290-291
4.4.1(7) Identify the size and shape of recommended initial isolation and protective action zones.	Chapters 3 and 5	Pages 214-216, 280-284
4.4.1(8) Describe the difference between small and large spills as found in the Table of Initial Isolation and Protective Action Distances in the DOT Emergency Response Guidebook.	Chapter 3	Page 214
4.4.1(9) Identify the circumstances under which the following distances are used at a hazardous materials /WMD incidents: (a) Table of Initial Isolation and Protective Action Distances (b) Isolation distances in the numbered guides	Chapter 3	Pages: (a) 214-216 (b) 214-216

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 472, Current Edition
Hazardous Materials For First Responders, Third Edition
AWARENESS**

4.4.1(10) Describe the difference between the isolation distances on the orange-bordered guidebook pages and the protective action distances on the green-bordered ERG (Emergency Response Guidebook) pages.	Chapter 3	Pages 208-211
4.4.1(11) Identify the techniques used to isolate the hazard area and deny entry to unauthorized persons at hazardous materials/WMD incidents.	Chapters 3 and 5	Pages 216-218, 280
4.4.1(12) Identify at least four specific actions necessary when an incident is suspected to involve criminal or terrorist activity.	Chapter 3	Pages 216-218
4.4.2 Initiating the Notification Process. Given scenarios involving hazardous materials/WMD incidents, awareness level personnel shall identify the initial notifications to be made and how to make them, consistent with the emergency response plan and/or standard operating procedures.	Chapter 5	Pages 285-286

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 472, Current Edition
Hazardous Materials For First Responders, Third Edition
OPERATIONS**

JPR's	<u>Chapter References</u>	<u>Page References</u>
5.1 General.		
5.1.1.1 The operations level responder shall be that person who responds to hazardous materials/weapons of mass destruction (WMD) incidents for the purpose of protecting nearby persons, the environment, or property from the effects of the release.	Chapter 1	Pages 11-17
5.1.1.2 The operations level responder shall be trained to meet all competencies at the awareness level (Chapter 4) and the competencies of this chapter.	Chapter 1	Pages 13-17
5.1.1.3 The operations level responder shall receive additional training to meet applicable governmental occupational health and safety regulations.	Chapter 1	Pages 11-12
5.1.2 Goal.		
5.1.2.1 The goal of the competencies at this level shall be to provide operations level responders with the knowledge and skills to perform the core competencies in 5.1.2.2 safely.		
5.1.2.2(1) When responding to hazardous materials/WMD incidents, operations level responders shall be able to perform the following tasks:		

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 472, Current Edition
Hazardous Materials For First Responders, Third Edition
OPERATIONS**

<p>(1) Analyze a hazardous materials/WMD incident to determine the scope of the problem and potential outcomes by completing the following tasks:</p> <p>(a) Survey a hazardous materials/WMD incident to identify the containers and materials involved, determine whether hazardous materials/WMD have been released, and evaluate the surrounding conditions.</p> <p>(b) Collect hazard and response information from MSDS; CHEMTREC/CANUTEC/SETIQ; local, state, and federal authorities; and shipper/manufacture contacts.</p> <p>(c) Predict the likely behavior of a hazardous material/WMD and its container.</p> <p>(d) Estimate the potential harm at a hazardous materials/WMD incident.</p>	<p>Chapter 4</p> <p>(a) Chapter 4 (b) Chapter 1 (c) Chapter 4 (d) Chapter 4</p>	<p>Pages 249-266</p> <p>Pages: (a) 249-266 (b) 32-35 (c) 255-266 (d) 255-266</p>
<p>5.1.2.2(2) Plan an initial response to a hazardous materials/WMD incident within the capabilities and competencies of available personnel and personal protective equipment by completing the following tasks:</p> <p>(a) Describe the response objectives for the hazardous materials/WMD incident.</p> <p>(b) Describe the response options available for each objective.</p> <p>(c) Determine whether the personal protective equipment provided is appropriate for implementing each option.</p> <p>(d) Describe emergency decontamination procedures.</p> <p>(e) Develop a plan of action, including safety considerations.</p>	<p>Chapter 4</p> <p>(a) Chapter 4 (b) Chapter 4 (c) Chapter 6 (d) Chapter 7 (e) Chapter 4</p>	<p>Pages 266-272</p> <p>Pages: (a) 266-272 (b) 269-270 (c) 348-354 (d) 374-393 (e) 270-272</p>

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 472, Current Edition
Hazardous Materials For First Responders, Third Edition
OPERATIONS**

<p>5.1.2.2(3) Implement the planned response for a hazardous materials/WMD incident to favorably change the outcomes consistent with the emergency response plan and/or standard operating procedures by completing the following tasks:</p> <p>(a) Establish and enforce scene control procedures, including control zones, emergency decontamination, and communications.</p> <p>(b) Where criminal or terrorist acts are suspected, establish means of evidence preservation.</p> <p>(c) Initiate an incident command system (ICS) for hazardous materials/WMD incidents.</p> <p>(d) Perform tasks assigned as identified in the incident action plan.</p> <p>(e) Demonstrate emergency decontamination.</p>	<p>Chapter 4</p> <p>(a) Chapters 4, 5, 7 (b) Chapter 9 (c) Chapter 6 (d) Chapter 4 (e) Chapter 7</p>	<p>Pages 272-273</p> <p>Pages: (a) 241-244, 280-284, 374-393 (b) 498-500 (c) 228-240 (d) 272-273 (e) 379-380</p>
<p>5.1.2.2(4) Evaluate the progress of the actions taken at a hazardous materials/WMD incident to ensure that the response objectives are being met safely, effectively, and efficiently by completing the following tasks:</p> <p>(a) Evaluate the status of the actions taken in accomplishing the response objectives.</p> <p>(b) Communicate the status of the planned response.</p>	<p>Chapter 4</p> <p>(a) Chapter 4 (b) Chapter 4</p>	<p>Pages 273</p> <p>Pages: (a) 273 (b) 241-244, 273</p>
<p>5.2.1 Surveying Hazardous Materials/WMD Incidents. Given scenarios involving hazardous materials/WMD incidents, the operations level responder shall survey the incident to identify the containers and materials involved, determine whether hazardous materials/WMD have been released, and evaluate the surrounding conditions and shall meet the requirements of 5.2.1.1 through 5.2.1.6.</p>	<p>Chapter 4</p>	<p>Pages 249-266</p>

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 472, Current Edition
Hazardous Materials For First Responders, Third Edition
OPERATIONS**

5.2.1.1 Given three examples each of liquid, gas, and solid hazardous material or WMD, including various hazard classes, operations level personnel shall identify the general shapes of containers in which the hazardous materials/WMD are typically found.	Chapter 3	Pages 109-221
5.2.1.1.1 Given examples of the following tank cars, the operations level responder shall identify each tank car by type, as follows:		
(1) Cryogenic liquid tank cars	Chapter 3	Pages 118-124
(2) Nonpressure tank cars (general service or low pressure cars)	Chapter 3	Pages 118-124
(3) Pressure tank cars	Chapter 3	Pages 118-124
5.2.1.1.2 Given examples of the following intermodal tanks, the operations level responder shall identify each intermodal tank by type, as follows:	Chapter 3	Pages 134-138
(1) Nonpressure intermodal tanks	Chapter 3	Pages 134-138
(2) Pressure intermodal tanks	Chapter 3	Pages 134-138
(3) Specialized intermodal tanks, including the following:	Chapter 3	Pages 134-138
(a) Cryogenic intermodal tanks (b) Tube modules	(a) Chapter 3 (b) Chapter 3	Pages: (a) 134-138 (b) 134-138
5.2.1.1.3 Given examples of the following cargo tanks, the operations level responder shall identify each cargo tank by type, as follows:	Chapter 3	Pages 124-134
(1) Compressed gas tube trailers	Chapter 3	Pages 124-134
(2) Corrosive liquid tanks	Chapter 3	Pages 124-134
(3) Cryogenic liquid tanks	Chapter 3	Pages 124-134
(4) Dry bulk cargo tanks	Chapter 3	Pages 124-134
(5) High pressure tanks	Chapter 3	Pages 124-134
(6) Low pressure chemical tanks	Chapter 3	Pages 124-134

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 472, Current Edition
Hazardous Materials For First Responders, Third Edition
OPERATIONS**

(7) Nonpressure liquid tanks	Chapter 3	Pages 124-134
5.2.1.1.4 Given examples of the following storage tanks, the operations level responder shall identify each tank by type, as follows:		Pages 114-120
(1) Cryogenic liquid tank	Chapter 3	Page 118, 120
(2) Nonpressure tank	Chapter 3	Pages 115-118
(3) Pressure tank	Chapter 3	Page 118-120
5.2.1.1.5 Given examples of the following nonbulk packaging, the operations level responder shall identify each package by type, as follows:	Chapter 3	Pages 146-150
(1) Bags	Chapter 3	Page 148
(2) Carboys	Chapter 3	Page 149
(3) Cylinders	Chapter 3	Pages 149-150
(4) Drums	Chapter 3	Page 150
(5) Dewar flask (cryogenic liquids)	Chapter 3	Pages 129-131
5.2.1.1.6 Given examples of the following radioactive material packages, the operations level responder shall identify the characteristics of each container or package by type, as follows:		
(1) Excepted	Chapter 3	Pages 150-153
(2) Industrial	Chapter 3	Pages 150-153
(3) Type A	Chapter 3	Pages 150-153
(4) Type B	Chapter 3	Pages 150-153
(5) Type C		
5.2.1.2 Given examples of containers, the operations level responder shall identify the markings that differentiate one container from another.	Chapter 3	Pages 154-202
5.2.1.2.1 Given examples of the following marked transport vehicles and their corresponding shipping papers, the operations level responder shall identify the following vehicle or tank identification marking:		
(1) Highway transport vehicles, including cargo tanks	Chapter 3	Pages 156-172, 179
(2) Intermodal equipment, including tank containers	Chapter 3	Pages 180-183
(3) Rail transport vehicles, including tank cars	Chapter 3	Pages 156-172, 179-180

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 472, Current Edition
Hazardous Materials For First Responders, Third Edition
OPERATIONS**

5.2.1.2.2 Given examples of facility containers, the operations level responder shall identify the markings indicating container size, product contained, and/or site identification numbers.	Chapter 3	Pages 183-202
5.2.1.3 Given examples of hazardous materials incidents, the operations level responder shall identify the name(s) of the hazardous material(s) in 5.2.1.3.1 through 5.2.1.3.3.	Chapter 3	Pages 183-202
5.2.1.3.1 The operations level responder shall identify the following information on a pipeline marker:		
(1) Emergency telephone number	Chapter 3	Pages 195-200
(2) Owner	Chapter 3	Pages 195-200
(3) Product	Chapter 3	Pages 195-200
5.2.1.3.2 Given a pesticide label, the operations level responder shall identify each of the following pieces of information, then match the piece of information to its significance in surveying hazardous materials incidents:		
(1) Active ingredient	Chapter 3	Pages 200-202
(2) Hazard statement	Chapter 3	Pages 200-202
(3) Name of pesticide	Chapter 3	Pages 200-202
(4) Pest control product (PCP) number (in Canada)	Chapter 3	Pages 200-202
(5) Precautionary statement	Chapter 3	Pages 200-202
(6) Signal word	Chapter 3	Pages 200-202
5.2.1.3.3 Given a label for a radioactive material, the operations level responder shall identify the type or category of label, contents, activity, transport index, and criticality safety index as applicable.	Chapter 3	Pages 167, 176-177
5.2.1.4 The operations level responder shall identify and list the surrounding conditions that should be noted when a hazardous materials/WMD incident is surveyed.	Chapter 4	Pages 252-254
5.2.1.5 The operations level responder shall give examples of ways to verify information obtained from the survey of a hazardous materials/WMD incident.	Chapter 4	Pages 249-266

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 472, Current Edition
Hazardous Materials For First Responders, Third Edition
OPERATIONS**

5.2.1.6 The operations level responder shall identify at least three additional hazards that could be associated with an incident involving terrorist or criminal activities.	Chapter 9	Pages 443-445
5.2.2 Collecting Hazard and Response Information. Given scenarios involving known hazardous materials/WMD, the operations level responder shall collect hazard and response information using MSDS, CHEMTREC/CANUTEC/SETIQ, governmental authorities, and shippers and manufacturers and shall meet the following requirements:	Chapters 1 and 3	Pages 32-35, 158-177, 202-216
5.2.2(1) Match the definitions associated with the UN/DOT hazard classes and divisions of hazardous materials/WMD, including refrigerated liquefied gases and cryogenic liquids, with the class or division.	Chapter 3	Pages 154-168
5.2.2(2) Identify two ways to obtain an MSDS in an emergency.	Chapter 3	Pages 205-207
5.2.2(3) Using an 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) Permissible exposure limits (g) Responsible party 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	Chapter 3 Chapters 2 and 3	Pages 205-207 Pages: (a) 45-58, 207-208 (b) 58-88, 207-208 (c) 58-88, 207-208 (d) 85, 207-208 (e) 71-73, 207-208 (f) 73-81, 207-208 (g) 207-208 (h) 207-208 (i) 207-208 (j) 207-208

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 472, Current Edition
Hazardous Materials For First Responders, Third Edition
OPERATIONS**

5.2.2(4) Identify the following: (a) Type of assistance provided by CHEMTREC/CANUTEC/SETIQ and governmental authorities (b) Procedure for contacting CHEMTREC/CANUTEC/SETIQ and governmental authorities (c) Information to be furnished to CHEMTREC/CANUTEC/SETIQ and governmental authorities	Chapter 1 (a) Chapter 1 (b) Chapter 1	Pages: (a) 32-35 (b) 32-35 (c) 32-35
5.2.2(5) Identify two methods of contacting the manufacturer or shipper to obtain hazard and response information.	Chapter 3	Pages 202-216
5.2.2(6) Identify the type of assistance provided by governmental authorities with respect to criminal or terrorist activities involving the release or potential release of hazardous materials/WMD.	Chapter 9	Pages 496-508
5.2.2(7) Identify the procedure for contacting local, state, and federal authorities as specified in the emergency response plan and/or standard operating procedures.	Chapter 5	Pages 285
5.2.2(8) Describe the properties and characteristics of the following: (a) Alpha radiation (b) Beta radiation (c) Gamma radiation (d) Neutron radiation	Chapter 2	Pages: (a) 64 (b) 64 (c) 64 (d) 65
5.2.3 Predicting the Likely Behavior of a Material and Its Container. Given scenarios involving hazardous materials/WMD incidents, each with a single hazardous material/WMD, the operations level responder shall predict the likely behavior of the material or agent and its container and shall meet the following requirements:	Chapter 4	Pages 255-266

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 472, Current Edition
Hazardous Materials For First Responders, Third Edition
OPERATIONS**

<p>5.2.3(1) Interpret the hazard and response information obtained from the current edition of the DOT Emergency Response Guidebook, MSDS, CHEMTREC/CANUTEC/SETIQ, governmental authorities, and shipper and manufacturer contacts, as follows:</p>	Chapter 4	Pages 249-266
<p>(a) Match the following chemical and physical properties with their significance and impact on the behavior of the container and its contents:</p> <ul style="list-style-type: none">i. Boiling pointii. Chemical reactivityiii. Corrosivity (pH)iv. Flammable (explosive) range [lower explosive limit (LEL) and upper explosive limit (UEL)]v. Flash pointvi. Ignition (autoignition) temperaturevii. Particle sizeviii. Persistenceix. Physical state (solid, liquid, gas)x. Radiation (ionizing and non-ionizing)xi. Specific gravityxii. Toxic products of combustionxiii. Vapor densityxiv. Vapor pressurexv. Water solubility	Chapter 2 (i-vii)Chapter 2 (viii) NFPA 472 (ix-xi) Chapter 7 (xii) Chapter 8 (ix-xv) Chapter 2	Pages (a) 45-58 Pages: (i) 51-52 (ii) 54-58 (iii) 81-82 (iv) 49-50 (v) 47 (vi) 47-48 (vii) 65 (viii) 2008 NFPA 472 Competencies (ix) 46 (x) 63-65 (xi) 53-54 (xii) 372, 436 (xiii) 52 (xiv) 50-51 (xv) 52-53
<p>(b) Identify the differences between the following terms:</p> <ul style="list-style-type: none">i. Contamination and secondary contaminationii. Exposure and contaminationiii. Exposure and hazardiv. Infectious and contagiousv. Acute effects and chronic effectsvi. Acute exposures and chronic exposures	(i) Chapter 7 (ii) Chapter 7 (iii) Chapter 2 (iv) Chapter 9 (v) Chapter 2 (vi) Chapter 2	Pages: (i) 371-374 (ii) 372 (iii) 45 (iv) 447-454 (v) 45 (vi) 45

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 472, Current Edition
Hazardous Materials For First Responders, Third Edition
OPERATIONS**

5.2.3(2) Identify three types of stress that can cause a container system to release its contents.	Chapter 4	Page 256
5.2.3(3) Identify five ways in which containers can breach.	Chapter 4	Pages 256-257
5.2.3(4) Identify four ways in which containers can release their contents.	Chapter 4	Pages 257-258
5.2.3(5) Identify at least four dispersion patterns that can be created upon release of a hazardous material.	Chapter 4	Pages 258-265
5.2.3(6) Identify the time frames for estimating the duration that hazardous materials/WMD will present an exposure risk.	Chapter 4	Page 266
5.2.3(7) Identify the health and physical hazards that could cause harm.	Chapter 2	Pages 58-88
5.2.3(8) Identify the health hazards associated with the following terms: (a) Alpha, beta, gamma, and neutron radiation (b) Asphyxiant (c) Carcinogen (d) Convulsant (e) Corrosive (f) Highly toxic (g) Irritant (h) Sensitizer, allergen (i) Target organ effects (j) Toxic	Chapter 2 (a) Chapter 2 (b) Chapter 2 (c) Chapter 2 (d) Chapter 2 (e) Chapter 2 (f) Chapter 2 and 9 (g) Chapter 2 (h) Chapter 2 (i) Chapter 2 (j) Chapter 2 and 9	Pages 58-88 Pages: (a) 68-69 (b) 70 (c) 82-84 (d) 70-71, 81 (e) 70-71, 81-82 (f) 73-81, 475-476 (g) 70-71, 81 (h) 70-71, 84-85 (i) 74 (j) 73-81, 475-476
5.2.3(9) Given the following, identify the corresponding UN/DOT hazard class and division: (a) Blood agents (b) Biological agents and biological toxins (c) Choking agents (d) Irritants (riot control agents) (e) Nerve agents (f) Radiological materials (g) Vesicants (blister agents)	Chapter 9 (a-g) Chapter 9	Pages 447-496 Pages: (a) 464-470 (b) 449-454 (c) 470-473 (d) 473-475 (e) 460-463 (f) 454-457 (g) 463-464

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 472, Current Edition
Hazardous Materials For First Responders, Third Edition
OPERATIONS**

5.2.4 Estimating Potential Harm. Given scenarios involving hazardous materials/WMD incidents, the operations level responder shall estimate the potential harm within the endangered area at each incident and shall meet the following requirements:	Chapter 4	255, 266
5.2.4(1) Identify a resource for determining the size of an endangered area of a hazardous materials/WMD incident.	Chapter 3	Pages 214-215
5.2.4(2) Given the dimensions of the endangered area and the surrounding conditions at a hazardous materials/WMD incident, estimate the number and type of exposures within that endangered area.	Chapter 5	Pages 288-290
5.2.4(3) Identify resources available for determining the concentrations of a released hazardous material/WMD within an endangered area.	Chapter 3	Pages 219-221
5.2.4(4) Given the concentrations of the released material, identify the factors for determining the extent of physical, health, and safety hazards within the endangered area of a hazardous materials/WMD incident.	Chapter 4	Pages 249-266
5.2.4(5) Describe the impact that time, distance, and shielding have on exposure to radioactive materials specific to the expected dose rate.	Chapter 2	Pages 69-70
5.3.1 Describing Response Objectives. Given at least two scenarios involving hazardous materials/WMD incidents, the operations level responder shall describe the response objectives for each example and shall meet the following requirements:	Chapter 5	Pages 279, 288-290
5.3.1(1) Given an analysis of a hazardous materials/WMD incident and the exposures, determine the number of exposures that could be saved with the resources provided by the AHJ.	Chapter 5	Pages 288-290
5.3.1(2) Given an analysis of a hazardous materials/WMD incident, describe the steps for determining response objectives.	Chapter 4	Pages 266-272

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 472, Current Edition
Hazardous Materials For First Responders, Third Edition
OPERATIONS**

5.3.1(3) Describe how to assess the risk to a responder for each hazard class in rescuing injured persons at a hazardous materials/WMD incident.	Chapter 5	Pages 286-288
5.3.1(4) Assess the potential for secondary attacks and devices at criminal or terrorist events.	Chapter 9	Pages 497-498
5.3.2 Identifying Action Options. Given examples of hazardous materials/WMD incidents (facility and transportation), the operations level responder shall identify the options for each response objective and shall meet the following requirements:	Chapter 5	Pages 279
5.3.2(1) Identify the options to accomplish a given response objective.	Chapter 4	Pages 266-273
5.3.2(2) Describe the prioritization of emergency medical care and removal of victims from the hazard area relative to exposure and contamination concerns.	Chapter 5 and 7	Pages 286, 374-390
5.3.3 Determining Suitability of Personal Protective Equipment. Given examples of hazardous materials/WMD incidents, including the name of the hazardous material/WMD involved and the anticipated type of exposure, the operations level responder shall determine whether available personal protective equipment is applicable to performing assigned tasks and shall meet the following requirements:	Chapter 6	Pages 326-333, 348-354
5.3.3(1) Identify the respiratory protection required for a given response option and the following:	Chapter 6	Pages 334-343

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 472, Current Edition
Hazardous Materials For First Responders, Third Edition
OPERATIONS**

<p>(a) Describe the advantages, limitations, uses, and operational components of the following types of respiratory protection at hazardous materials/WMD incidents:</p> <ul style="list-style-type: none">i. Positive pressure self-contained breathing apparatus (SCBA)ii. Positive pressure air-line respirator with required escape unitiii. Closed-circuit SCBAiv. Powered air-purifying respirator (PAPR)v. Air-purifying respirator (APR)vi. Particulate respirator	<p>(a) Chapter 6</p> <p>(i-vi) Chapter 6</p>	<p>Pages (a) 341-342</p> <p>(i) 335 (ii) 335-337 (iii) 335 (iv) 340 (v) 337-340 (vi) 338-339</p>
<p>(b) Identify the required physical capabilities and limitations of personnel working in respiratory protection.</p>	<p>(b) Chapter 6</p>	<p>Pages 340-342</p>
<p>5.3.3(2) Identify the personal protective clothing required for a given option and the following:</p>	<p>Chapter 6</p>	<p>Pages 326-343</p>
<p>(a) Identify skin contact hazards encountered at hazardous materials/WMD incidents.</p>	<p>Chapter 6</p>	<p>(a) Pages 326-333</p>
<p>(b) Identify the purpose, advantages, and limitations of the following types of protective clothing at hazardous materials/WMD incidents:</p> <ul style="list-style-type: none">i. Chemical-protective clothing: liquid splash-protective clothing and vapor-protective clothingii. High temperature-protective clothing: proximity suit and entry suitsiii. Structural fire-fighting protective clothing	<p>(b) Chapter 6</p> <p>(i-iii) Chapter 6</p>	<p>Pages 326-333</p> <p>Pages: (i) 331-333 (ii) 328 (iii) 327-328</p>
<p>5.3.4 Identifying Decontamination Issues. Given scenarios involving hazardous materials/WMD incidents, operations level responders shall identify when emergency decontamination is needed and shall meet the following requirements:</p>	<p>Chapter 7</p>	<p>Pages 371-393</p>

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 472, Current Edition
Hazardous Materials For First Responders, Third Edition
OPERATIONS**

5.3.4(1) Identify ways that people, personal protective equipment, apparatus, tools, and equipment become contaminated.	Chapter 7	Pages 371-374
5.3.4(2) Describe how the potential for secondary contamination determines the need for decontamination.	Chapter 7	Pages 373
5.3.4(3) Explain the importance and limitations of decontamination procedures at hazardous materials incidents.	Chapter 7	Pages 374-379
5.3.4(4) Identify the purpose of emergency decontamination procedures at hazardous materials incidents.	Chapter 7	Pages 379-380
5.3.4(5) Identify the factors that should be considered in emergency decontamination.	Chapter 7	Pages 379-380
5.3.4(6) Identify the advantages and limitations of emergency decontamination procedures.	Chapter 7	Page 380
5.4.1 Establishing and Enforcing Scene Control Procedures. Given two scenarios involving hazardous materials/WMD incidents, the operations level responder shall identify how to establish and enforce scene control, including control zones and emergency decontamination, and communications between responders and to the public and shall meet the following requirements:	Chapter 5	Pages 279-284
5.4.1(1) Identify the procedures for establishing scene control through control zones.	Chapter 5	Pages 280-284
5.4.1(2) Identify the criteria for determining the locations of the control zones at hazardous materials/WMD incidents.	Chapter 5	Pages 280-284
5.4.1(3) Identify the basic techniques for the following protective actions at hazardous materials/WMD incidents: (a) Evacuation (b) Sheltering-in-place	Chapter 5 (a-b) Chapter 5	Page 290 Pages: (a) 290 (b) 290-291
5.4.1(4) Demonstrate the ability to perform emergency decontamination.	Chapter 5	Pages 379-380

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 472, Current Edition
Hazardous Materials For First Responders, Third Edition
OPERATIONS**

5.4.1(5) Identify the items to be considered in a safety briefing prior to allowing personnel to work at the following: (a) Hazardous material incidents (b) Hazardous materials/WMD incidents involving criminal activities	Chapter 4 (a-b) Chapter 4	Pages 234-235 Pages (a) 234-235 (b) 234-235
5.4.1(6) Identify the procedures for ensuring coordinated communication between responders and to the public.	Chapters 4 and 5	Pages 241-244, 285
5.4.2 Preserving Evidence. Given two scenarios involving hazardous materials/WMD incidents, the operations level responder shall describe the process to preserve evidence as listed in the emergency response plan and/or standard operating procedures.	Chapter 9	Pages 498-500
5.4.3 Initiating the Incident Command System. Given scenarios involving hazardous materials/WMD incidents, the operations level responder shall initiate the incident command system specified in the emergency response plan and/or standard operating procedures and shall meet the following requirements:	Chapter 4	Pages 228-240
5.4.3(1) Identify the role of the operations level responder during hazardous materials/WMD incidents as specified in the emergency response plan and/or standard operating procedures.	Chapter 4	240-241
5.4.3(2) Identify the levels of hazardous materials/WMD incidents as defined in the emergency response plan.	Chapter 4	244-247
5.4.3(3) Identify the purpose, need, benefits, and elements of the incident command system for hazardous materials/WMD incidents.	Chapter 4	228-240
5.4.3(4) Identify the duties and responsibilities of the following functions within the incident management system: (a) Incident safety officer (b) Hazardous materials branch or group	Chapter 4	Pages: (a) 234-235 (b) 239-240

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 472, Current Edition
Hazardous Materials For First Responders, Third Edition
OPERATIONS**

5.4.3(5) Identify the considerations for determining the location of the incident command post for a hazardous materials/WMD incident.	Chapter 4	Page 235
5.4.3(6) Identify the procedures for requesting additional resources at a hazardous materials/WMD incident.	Chapter 4	Pages 241-244
5.4.3(7) Describe the role and response objectives of other agencies that respond to hazardous materials/WMD incidents.	Chapter 4	Pages 238-239
5.4.4 Using Personal Protective Equipment. The operations level responder shall describe considerations for the use of personal protective equipment provided by the AHJ, and shall meet the following requirements:	Chapter 6	Pages 328-366
5.4.4(1) Identify the importance of the buddy system.	Chapter 4	Page 247
5.4.4(2) Identify the importance of the backup personnel.	Chapter 4	Page 247
5.4.4(3) Identify the safety precautions to be observed when approaching and working at hazardous materials/WMD incidents.	Chapters 3 and 4	Pages 113, 252, 272
5.4.4(4) Identify the signs and symptoms of heat and cold stress and procedures for their control.	Chapter 6	Pages 362-366
5.4.4(5) Identify the capabilities and limitations of personnel working in the personal protective equipment provided by the AHJ.	Chapter 6	Pages 340-342
5.4.4(6) Identify the procedures for cleaning, disinfecting, and inspecting personal protective equipment provided by the AHJ.	Chapter 6	Pages 354-359
5.4.4(7) Describe the maintenance, testing, inspection, and storage procedures for personal protective equipment provided by the AHJ according to the manufacturer's specifications and recommendations.	Chapter 6	Pages 359-362

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 472, Current Edition
Hazardous Materials For First Responders, Third Edition
OPERATIONS**

5.5.1 Evaluating the Status of Planned Response. Given two scenarios involving hazardous materials/WMD incidents, including the incident action plan, the operations level responder shall evaluate the status of the actions taken in accomplishing the response objectives and shall meet the following requirements:	Chapter 4	Page 273
5.5.1(1) Identify the considerations for evaluating whether actions taken were effective in accomplishing the objectives.	Chapter 4	Page 273
5.5.1(2) Describe the circumstances under which it would be prudent to withdraw from a hazardous materials/WMD incident.	Chapter 4	Pages 268-269
5.5.2 Communicating the Status of the Planned Response. Given two scenarios involving hazardous materials/WMD incidents, including the incident action plan, the operations level responder shall communicate the status of the planned response through the normal chain of command and shall meet the following requirements:	Chapter 4	Pages 241-244
5.5.2(1) Identify the methods for communicating the status of the planned response through the normal chain of command.	Chapter 4	Pages 241-244
5.5.2(2) Identify the methods for immediate notification of the incident commander and other response personnel about critical emergency conditions at the incident.	Chapter 4	Pages 241-244
6.2.3.1 Selecting Personal Protective Equipment. Given scenarios involving hazardous materials/WMD incidents with known and unknown hazardous materials/WMD, the operations level responder assigned to use personal protective equipment shall select the personal protective equipment required to support mission-specific tasks at hazardous materials/WMD incidents based on local procedures and shall meet the following requirements:	Chapter 6	Pages 325-327

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 472, Current Edition
Hazardous Materials For First Responders, Third Edition
OPERATIONS**

6.2.3.1(1) Describe the types of protective clothing and equipment that are available for response based on NFPA standards and how these items relate to EPA levels of protection.	Chapter 6	Pages 326-333
6.2.3.1(2) Describe personal protective equipment options for the following hazards: (a) Thermal (b) Radiological (c) Asphyxiating (d) Chemical (e) Etiological/biological (f) Mechanical	Chapters: (a) Chapters 2 and 6 (b) Chapters 2 and 9 (c) Chapters 2 and 6 (d) Chapters 2 and 6 (e) Chapter 6 (f) Chapter 2 and 9	Pages: (a) 61-62, 327-328 (b) 69, 501-503 (c) 70, 345 (d) 70-71, 328-333 (e) 346-347 (f) 86-87, 506-507
6.2.3.1(3) Select personal protective equipment for mission-specific tasks at hazardous materials/WMD incidents based on local procedures.	Chapter 6	Pages 348-349, 352-354
(a) Describe the following terms and explain their impact and significance on the selection of chemical-protective clothing: i. Degradation ii. Penetration iii. Permeation	(i) Chapter 6 (ii) Chapter 6 (iii) Chapter 6	Pages: (i) 330 (ii) 330 (iii) 329-330
(b) Identify at least three indications of material degradation of chemical-protective clothing.	Chapter 6	Page 330
(c) Identify the different designs of vapor-protective and splash-protective clothing and describe the advantages and disadvantages of each type.	Chapter 6	Pages 328-333

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 472, Current Edition
Hazardous Materials For First Responders, Third Edition
OPERATIONS**

(d) Identify the relative advantages and disadvantages of the following heat exchange units used for the cooling of personnel operating in personal protective equipment: i. Air cooled ii. Ice cooled iii. Water cooled iv. Phase change cooling technology		NFPA 472 Competencies
(e) Identify the physiological and psychological stresses that can affect users of personal protective equipment.	Chapter 6	Pages 340-342, 362-366
(f) Describe local procedures for going through the technical decontamination process.	Chapter 6	Pages 380-383
6.6.1.1.1 The operations level responder assigned to perform product control shall be that person, competent at the operations level, who is assigned to implement product control measures at hazardous materials/WMD incidents.	Chapter 1	Pages 13-17
6.6.1.1.2 The operations level responder assigned to perform product control at hazardous materials/WMD incidents shall be trained to meet all competencies at the awareness level (Chapter 4), all core competencies at the operations level (Chapter 5), all mission-specific competencies for personal protective equipment (Section 6.2), and all competencies in this section.	Chapter 1	Pages 13-17
6.6.1.1.3 The operations level responder assigned to perform product control at hazardous materials/WMD incidents shall operate under the guidance of a hazardous materials technician, an allied professional, or standard operating procedures.	Chapter 4	Pages 239-240
6.6.1.1.4 The operations level responder assigned to perform product control at hazardous materials/WMD incidents shall receive the additional training necessary to meet specific needs of the jurisdiction.	Chapter 1	Pages 13-17

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 472, Current Edition
Hazardous Materials For First Responders, Third Edition
OPERATIONS**

6.6.1.2.1 The goal of the competencies in this section shall be to provide the operations level responder assigned to product control at hazardous materials/WMD incidents with the knowledge and skills to perform the tasks in 6.6.1.2.2 safely and effectively.		
6.6.1.2.2 When responding to hazardous materials/WMD incidents, the operations level responder assigned to perform product control shall be able to perform the following tasks:		
6.6.1.2.2(1) Plan an initial response within the capabilities and competencies of available personnel, personal protective equipment, and control equipment and in accordance with the emergency response plan or standard operating procedures by completing the following tasks: (a) Describe the control options available to the operations level responder. (b) Describe the control options available for flammable liquid and flammable gas incidents.	Chapter 4 Chapters (a) Chapters 4, 5, & 8 (b) Chapter 8	Pages 227-228, 244-247, 252-273 Pages: (a) 268-270, 291-314, 416-436 (b) 400-416
6.6.1.2.2(2) Implement the planned response to a hazardous materials/WMD incident.	Chapter 4	Pages 272-273
6.6.3.1 Identifying Control Options. Given examples of hazardous materials/WMD incidents, the operations level responder assigned to perform product control shall identify the options for each response objective and shall meet the following requirements as prescribed by the AHJ:	Chapter 4	Pages 268-271
6.6.3.1(1) Identify the options to accomplish a given response objective.	Chapter 5	291-314

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 472, Current Edition
Hazardous Materials For First Responders, Third Edition
OPERATIONS**

Identify the purpose for and the procedures, equipment, and safety precautions associated with each of the following control techniques: (a) Absorption (b) Adsorption (c) Damming (d) Diking (e) Dilution (f) Diversion (g) Remote valve shutoff (h) Retention (i) Vapor dispersion (j) Vapor suppression	Chapter 5 for all	Pages: (a) 293 (b) 293-294 (c) 294 (d) 294 (e) 299 (f) 294 (g) 300-301 (h) 294 (i) 298 (j) 295-297
6.6.3.2 Selecting Personal Protective Equipment. The operations level responder assigned to perform product control shall select the personal protective equipment required to support product control at hazardous materials/WMD incidents based on local procedures (see Section 6.2).		
6.6.4.1 Performing Control Options. Given an incident action plan for a hazardous materials/WMD incident, within the capabilities and equipment provided by the AHJ, the operations level responder assigned to perform product control shall demonstrate control functions set out in the plan and shall meet the following requirements as prescribed by the AHJ:		
6.6.4.1(1) Using the type of special purpose or hazard suppressing foams or agents and foam equipment furnished by the AHJ, demonstrate the application of the foam(s) or agent(s) on a spill or fire involving hazardous materials/WMD.	Chapter 5	Pages 306-314

Self-Study, Written, and Practical Skills Requirements and Study Hints

**NFPA 472, Current Edition
Hazardous Materials For First Responders, Third Edition
OPERATIONS**

6.6.4.1(2) Identify the characteristics and applicability of the following Class B foams if supplied by the AHJ: (a) Aqueous film-forming foam (AFFF) (b) Alcohol-resistant concentrates (c) Fluoroprotein (d) High-expansion foam	Chapter 5 for all	Pages: (a) 310-311 (b) 311-312 (c) 309-310 (d) 312
6.6.4.1(2) Given the required tools and equipment, demonstrate how to perform the following control activities: (a) Absorption (b) Adsorption (c) Damming (d) Diking (e) Dilution (f) Diversion (g) Retention (h) Remote valve shutoff (i) Vapor dispersion (j) Vapor suppression	Chapter 5 for all	Pages: (a) 293 (b) 293-294 (c) 294 (d) 294 (e) 299 (f) 294 (g) 300-301 (h) 294 (i) 298 (j) 295-297
6.6.4.1(4) Identify the location and describe the use of emergency remote shutoff devices on MC/DOT-306/406, MC/DOT-307/407, and MC-331 cargo tanks containing flammable liquids or gases.	Chapters 3 and 5	Pages 124-134, 300-302
6.6.4.1(5) Describe the use of emergency remote shutoff devices at fixed facilities.	Chapter 5	380-383
6.6.4.2 The operations level responder assigned to perform product control shall describe local procedures for going through the technical decontamination process.	Chapter 7	380-383

APPENDIX

SAMPLES OF QUESTIONS USED IN THE WRITTEN EXAMINATION ELEMENT

FIRE BEHAVIOR

1. Which statement below best describes how heat will normally flow between two bodies?
 - A. Heat will flow from the cooler body to the warmer.
 - B. Heat will not flow, but will be retained by the warmer body.
 - C. Heat will not flow, but will be retained by the cooler body.
 - D. Heat will flow from the warmer body to the cooler.

FORCIBLE ENTRY

2. Which statement below is true concerning forcible entry tools?
 - A. Even with the best forcible entry tools, firefighters often encounter impossible forcible entry problems.
 - B. Forcible entry tools should ideally be able to fit into the left hand bunker coat pocket of firefighters.
 - C. Once familiar with their tools, firefighters can almost always effect a prompt forcible entry.
 - D. To be effective, forcible entry tools must be properly hooked up to a hydraulic power unit.

VENTILATION

3. Choose the correct definition of ventilation.
 - A. The systematic removal and replacement of heated air, smoke and gases from a structure with cooler air.
 - B. The emergency procedure of opening a roof, wall or floor in order to cancel the thermal layering effect.
 - C. The systematic utilization of protective breathing apparatus in order to guarantee a fresh air supply.
 - D. The emergency procedure of locating the correct hand position and depressing the sternum one and one-half inches.

LADDERS

4. Select the FALSE statement about fire service ladders from the choices below.
 - A. By necessity, they must be more flexible than comparable commercial ladders.
 - B. They tend to be built more rigidly than comparable commercial ladders.
 - C. They tend to support more load than comparable commercial ladders.
 - D. They are addressed by NFPA Standard 1931.

FIRE STREAMS

5. Which of the following statements is correct regarding fire streams?
- A. A fire stream means the water in the tank, as well as that in the pump, hose and nozzle.
 - B. A fire stream can be defined as a stream of water after it leaves a fire hose and nozzle until it reaches the desired point.
 - C. A fire stream refers to the white spinning fog that develops over the fuel once water hits it.
 - D. A fire stream describes the movement of the water once it hits the fuel and begins to penetrate.

HAZARDOUS MATERIALS – AWARENESS

6. A reference book intended to be carried in every emergency vehicle in the United States is the:
- A. IFSTA First Responder Manual
 - B. NIOSH Handbook of Hazardous Materials
 - C. Emergency Response Guidebook
 - D. NFPA Fire Protection Handbook

HAZARDOUS MATERIALS – OPERATIONS

7. The purpose of vapor suppression is to:
- A. Stop the further release of a material from its container.
 - B. Direct or influence the course of airborne hazardous materials.
 - C. Control the flow of a hazmat spill.
 - D. Reduce the emission of vapors.

SUMMARY OF PRACTICAL SKILLS TEST STATIONS

1. **PPE & SCBA** - Individual

- Test 1 Part 1 Pre-don Check of PPE/SCBA including demonstrate cylinder change (5 minutes)
 Test 1 Part 2 Don PPE/SCBA and demonstrate bypass operation (3 minutes)
 Test 1 Part 3 Remove harness, and exit through or under a restricted passage while on air (1 minute)

The test will include all of the three test parts (part 1, part 2, and part 3). Candidate will perform **all** of the above evolutions. The test includes the predon check, cylinder removal/replacement, properly donning/doffing PPE and SCBA, and movement through a restricted passage while on air.

2. **GROUND LADDER and ROOF LADDER EVOLUTION** - Team

Test time: 9 min. for third candidate to roof peak Total station time 15 min.

Each team will perform a ground ladder/roof ladder evolution.
 Each candidate will climb the ladders to the peak of the roof.

3. **WATER SUPPLY and APPARATUS SAFETY** – Team

Test time 5 min. to set up water supply Total station time 15 min.

- 3a Mount and dismount apparatus safely - Set up pumper for a rural water supply equipment
 3b Mount and dismount apparatus safely - Set up pumper for municipal water supply using threaded hose
 3c Mount and dismount apparatus safely - Set up pumper for municipal water supply using LDH hose

Team will choose one of the above tests.

4. **EXTERIOR FIRE OPERATIONS**

- 4a Fire extinguishers - Individual will demonstrate **one** of the following: Test time 3 min.
 4a.1 Fire Extinguisher on a Class A fire
 4a.2 Fire Extinguisher on a Class B fire
 4a.3 Fire Extinguisher on a Class C fire
 4b Vehicle fire - Team will demonstrate vehicle fire operations Test time 8 min.
 4c Ground cover fire - Team will demonstrate ground cover fire operations Test time 8 min.
 4d Exterior Class A Fire Attack - Team will demonstrate Class A fire attack Test time 8 min.

5. **FIRE GROUND SKILLS**

- 5a Ventilation - Team will demonstrate **one** the following skills: Test time 5 min.
 5a.1 Forcible entry with positive pressure ventilation
 5a.2 Forcible entry with negative pressure ventilation
 5a.3 Forcible entry with hydraulic ventilation
 5b Ropes and Knots - Individual will tie **one** of the following tools for hoisting: Test time 3 min.
 5b.1 Smoke ejector
 5b.2 Pike pole
 5b.3 Charged line

- 5b.4 Uncharged line
- 5b.5 Roof ladder
- 5b.6 Pickhead Axe

5c Property Conservation / Salvage - Demonstrate **one** of the following:

- 5c.1 Cluster furniture and deploy salvage cover – Individual Test time 4 min.
- 5c.2 Construct water chute and catchall – Team Test time 7 min.
- 5c.3 Turn off sprinkler system main valve, stop flow with wedges – Team Test time 4 min.
- 5d Vertical Ventilation - Team will demonstrate techniques of vertical ventilation Test time 8 min.

6. GENERAL FIRE SERVICE SKILLS - Individual or Team

- 6a Utility Control - Individual Test time 3 min.
 - 6a Part 1 - Turn off gas meter
 - 6a Part 2 - Turn off LP tank valve
 - 6a Part 3 - Turn off electric service at breaker panel
- 6b Cleanup, maintenance of equipment - Individual Test time 5 min.
 - 6b.1 Inspect and return to service SCBA equipment
 - 6b.2 Inspect and return to service a ground ladder
 - 6b.3 Inspect and return to service fire hose
 - 6b.4 Inspect an return to service fire service rope
 - 6b.5 Inspect and return to service fire service hand tools
 - 6b.6 Inspect and return to service a ventilation fan
- 6c Illuminate the fire scene – Team Test Test time 8 min.

7. COMBINED EVOLUTIONS - Team

- 7a Fire Attack and Overhaul Test time 5 min. Total station 15 min.
 - 7a.1 Ladder fire attack evolution
 - 7a.2 Stairway fire attack evolution
- 7b Search and Rescue Test time 5 min. Total station 15 min.
 - 7b.1 Ladder search and rescue evolution
 - 7b.2 Hose line search and rescue evolution

8. HAZARDOUS MATERIALS OPERATIONS LEVEL RESPONSE – Team or Individual

- Test 8 Part 1 – DOT ERG
- Test 8 Part 2 – Decon Operations Test time 15 min.
- Test 8 Part 3 – Protective Actions Total station time 15 min.

2008 NFPA® 472 Competencies

5.2.1.1.5 (5) *Dewar flask (cryogenic liquids)*

There are different designs of Dewar flasks, but all are vessels used to keep liquids at temperatures differing from that of the surrounding air. A Dewar flask consists of a double-walled flask, with the space between the two walls exhausted to a very high vacuum, to minimize transfer of heat by convection and conduction. The inner surfaces of the walls are silvered to reduce transfer of heat by radiation; areas of contact between the two walls are kept at a minimum to keep down conduction of heat. A simple thermos is an example of a Dewar flask.

5.2.1.1.6 (5) *Type C*

Type C radiological containers are not currently in use. They are theoretically designed for air transport.

5.2.3(1)(a)vii. *Particle size*

Particle size plays a role in the behavior of solid materials. Smaller particles tend to stay airborne for longer periods of time (for example, asbestos), while larger particles settle more quickly. Also, larger particles are more easily filtered by respiratory protection such as particle masks.

5.2.3(1)(a)viii. *Persistence*

The persistence of a chemical is its ability to remain in the environment. Chemicals that remain in the environment for a long time are more persistent than chemicals that quickly dissipate or break down. For example, persistent nerve agents will remain effective at their point of dispersion for a much longer time than nonpersistent nerve agents.

Persistence — Length of time a chemical agent remains effective without dispersing.

5.2.3(8)(i) *Target organ effects*

HMFR Table 2.6, pg 74 provides examples of toxins and their target organs.

6.2.3.1(3)(d)

i. *Air cooled*

ii. *Ice cooled*

iii. *Water cooled*

iv. *Phase change cooling technology*

- **Air cooling** — Wear long cotton undergarments or similar types of clothing to provide natural body ventilation. Once PPE has been removed, blowing air can help to evaporate sweat, thereby cooling the skin. Wind, fans, blowers, and misters can provide air movement. However, when ambient air temperatures and humidity are high, air movement may provide only limited benefit. Also, air cooling is of little use when actually wearing CPC.
- **Ice cooling** — Use ice to cool the body; however care must be taken not to damage skin with direct contact with ice, as well as to not cool off an individual too quickly. Ice will also melt relatively quickly. Ice cooling vests are available.
- **Water cooling** — Use water to cool the body. When water (including sweat) evaporates from skin, it cools. Provide mobile showers and misting facilities or evaporative cooling vests. Water cooling becomes less effective as air humidity increases and water temperatures rise.
- **Cooling vests** — Wear cooling vests beneath PPE. Cooling vest technologies may use ice, evaporation, gels, or phase change cooling technology. Unlike the lower temperatures provided by ice or gel vests, phase change cooling technology vests interact with body heat to maintain the garment at a consistent temperature of 59°F (15°C). **Note:** Use of cooling vests is being reviewed in Canada and the U.S. due to various health concerns, and several haz mat teams have disallowed them.

Practical Skills Test Sites

On July 1, 1995, a practical skills examination element was added to the Fire Fighter I certification process. This action was taken to both increase validity of WTCS, FST certification and facilitate national accreditation of the certification process. The resulting practical skills examinations were conducted only at sites approved to do so by WTCS FST. Entities approved as examination sites, based upon their satisfaction of facility and equipment requirements, are listed below in chronological order (by approval date):

- Waukesha County Technical College (WCTC), 1995
- Western Technical College (WTC), 2004
- Fox Valley Technical College (FVTC), 1995
- Madison Area Technical College (MATC-Mad), 1995
- Gateway Technical College (GTC), 1995
- Milwaukee Area Technical College (MATC-Milw), 1995
- Milwaukee Fire Department Bureau of Instruction and Training (MFD-BIT), 1995
- Northeast Wisconsin Technical College (NWTC), 1996
- Blackhawk Technical College (BTC), 1997
- Chippewa Valley Technical College (CVTC), 1999
- Lakeshore Technical College (LTC), 2000
- Nicolet Area Technical College (NATC), 2001
- Northcentral Technical College (NTC), 2007

The Wisconsin Technical College System (WTCS) is in full compliance with state and federal equal opportunity and affirmative action laws and regulations including Title VII of the 1964 Civil Rights Act, Age Discrimination in Employment Act, Title VI of the 1964 Civil Rights Act, Equal Pay Act, Title IX of the 1972 Education Amendments, and Section 504 of the 1973 Rehabilitation Act, Wisconsin Fair Employment Law, Wisconsin Civil Service Law and Executive Orders, the Carl Perkins Career and Technical Education Act, Adult Basic Education Act, Job Training Partnership Act, the Office of Civil Rights Guidelines for the Elimination of Discrimination in Technical Education, the Americans with Disabilities Act, and/or other applicable state or federal legislation. It is the policy of the WTCS not to discriminate on the basis of race, color, creed, national origin, religion, sex, age, disability, arrest record, conviction record, political affiliation, marital status, sexual orientation, and membership in the National Guard, state defense force or any other reserve component of the military forces of the United States, or this state. Inquiries regarding equal opportunity may be directed to the Wisconsin Technical College System, P.O. Box 7874, Madison, Wisconsin 53707-7874; telephone (608) 266-1766 or Telecommunications Device for the Deaf (TDD) (608) 267-2483. internet:

www.wtcsystem.edu

REVISED 10/08
08/09