

WILDERNESS RESCUE TECHNICIAN STANDARDS

I. Purpose

- A. The Wilderness Rescue Technician (RT) standards were developed to define the minimum requirements necessary to perform the following functions in the general environment of the Commonwealth of Virginia.
1. Evaluate a rescue situation and select the most appropriate techniques and systems, safety considerations and alternatives.
 2. Advise the Field Team Leader on all technical aspects of a rescue situation and evacuation.
 3. Conduct Semi-Technical Stokes litter evacuations.
- B. The Wilderness Rescue Technician should be capable of performing these functions anytime of the year, day or night, and in all weather experienced in the Commonwealth. To accomplish this, the RT should be able to:
1. Use standard extrication and patient packaging techniques.
 2. Evaluate and place anchor systems.
 3. Rig or supervise the rigging of necessary rope systems.
 4. Recognize safety problems and enforce safety standards.
 5. Supervise all roped travel.

II. Course Admission Criteria

A. Age

Minimum age for RT is 18.

B. Affiliation and Experience

Applicants for RT training should hold active membership in a SAR group, or an established emergency services organization such as a law enforcement agency, a rescue squad, or a fire department. First consideration for training will be given to these applicants. Additional factors such as prior experience, potential for use of training, number of SAR missions per year and other criteria may be considered.

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III. Knowledge and Performance Expectations

The RT will demonstrate an understanding of the items listed under each subject. Some items may require the performance of manual skills.

A. General -

1. A Wilderness Rescue Technician must be able to evaluate a rescue situation and select the most appropriate techniques and systems, safety considerations and alternatives. To be eligible for Wilderness Rescue Technician, an applicant must be a State Certified Field Team Leader and a member in good standing of a recognized rescue organization for at least one year, must possess the personal equipment necessary to serve as an Attendant-in-Charge (of a patient), as a Field Team Leader for a summer or winter search task, and as an evacuation team member. In addition, the candidate must have participated in one of the following within the two years before application for Wilderness Rescue Technician.
 - a. Two State search missions
 - b. One search and two full-scale State simulated searches
 - c. Four full-scale State simulated searches
2. Wilderness Rescue Technicians must be able to satisfactorily explain his/her duties and responsibilities, which include:
 - a. Assembling and rigging necessary technical equipment, including litters
 - b. Supervise all roped travel
 - c. Advise the FTL on all technical aspects of an evacuation
 - d. Enforce safety standards

B. Wilderness Rescue Level Survival and Wilderness Travel

1. Explain the prerequisites of and the proper and safe use of the techniques of free lead climbing, and the ability to lead 5.0+ (Sierra Club Scale) rock in spring, summer or fall.

C. Wilderness Rescue Level Ropework

1. Describe the different rope materials and construction and the advantages and disadvantages of each
 - a. Describe the working and breaking strengths for each type of rope
2. Describe the proper care of ropes including:
 - a. washing
 - b. drying
 - c. storing
 - d. inspecting
 - e. retirement criteria

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3. Describe the effects of the following agents on nylon rope
 - a. chemicals (petroleum, battery acids, etc.)
 - b. heat (including weld abrasion)
 - c. sunlight
 - d. aging

4. In addition to the FTM and FTL required knots, demonstrate the ability to correctly tie, contour, and back up the following knots; and describe each in terms of strength, security, proneness to jamming, and appropriate and inappropriate uses:
 - a. Bowline
 - b. Bowline-on-a-coil
 - c. Bowline-on-a-bight
 - d. Taut-line hitch
 - e. a redundant seat harness
 - f. the Crossed-loop chest harness
 - g. Figure eight on a bight
 - h. One-way knot
 - i. Frost knot

5. Demonstrate the ability to rappel properly with the following methods; and discuss the advantages, disadvantages, and appropriate uses of each:
 - a. the arm rappel
 - b. long rappel rack rappel
 - c. single and double-wrap on a Figure-8 descender
 - d. double carabiner/brake bar rappel
 - e. carabiner wrap rappel
 - f. six carabiner rappel
 - g. Munter hitch rappel

6. Demonstrate the ability to rig and use multiple-step pulldown rappels.

7. Demonstrate the ability to assemble and ascend properly with the following devices, and describe each in terms of strength, security, holding strength, special hazards, and appropriate uses:
 - a. Prusik knots and 3 wrap Prusik knots
 - b. Gibbs ascenders
 - c. open sided ascenders (e.g., Jumars)

8. Describe the proper selection, placement, advantages, disadvantages, safety issues and uses of pulleys including:
 - a. size (in relation to the rope)
 - b. configuration (double, etc.)
 - c. bearings vs. Bushings
 - d. use of carabiners vs. pulleys

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9. Demonstrate the ability to tie and discuss the appropriate uses of the end-of-rope prusik.
 10. Demonstrate the ability to ascend with one mechanical and one non-mechanical ascending system.
 11. Demonstrate the ability to rig and belay confidently and competently with:
 - a. the sitting hip belay
 - b. the standing hip belay
 - c. tree wrap belay
 - d. the Munter hitch
 - e. the belay plate
 - f. bottom belays
 - g. Figure eight and Rescue eight
 12. Demonstrate the ability to coil, tie-off and properly package ropes.
 13. Demonstrate the ability to rig static lines in diverse situations, including:
 - a. casting lines through brush or past obstructions
 - b. defouling lines
 - c. assessing abrasion hazards, padding, and rigging offset lines with directional anchors
 - d. rigging horizontal traverse lines
 - e. rigging diagonal lines
 14. Demonstrate the ability to select, place, and rig anchors both for individual use and for evacuations, including:
 - a. the evaluation and use of trees and rock formations including tree selection criteria
 - b. the placement and evaluation of mechanical anchors
 - c. tree wrap rigging (tensionless)
 - d. the proper self-equalizing of two anchors with a loop sling
 - e. the proper self-equalizing of several anchors
 - f. the advantages and disadvantages of "rigging high"
 - g. explain the the concepts of self-equalizing vs. pseudo-self-equalizing and load sharing vs. load shifting
 - h. aiming the anchor system and evaluating the fall line
 - i. selection criteria and evaluation techniques for urban anchor systems
 15. Demonstrate the ability to use any of the rappel methods described in item 2 (except the arm rappel), any of the ascenders described in item 3 and any of the ascending systems described in item 5, to do the following:
 - a. rappel and ascend past overhangs
 - b. tie off, rest and invert (both rappel and ascend)
 - c. rappel and ascend past knots
 - d. change from rappel to ascend and from ascend to rappel while on the rope
 - e. rappel and ascend diagonal traverses and slack horizontal traverses

16. Describe several different types of abrasion protect, advantages and disadvantages of each.
17. Describe the effects of theta angles and how they relate to rope and anchor systems, including recognizing "hidden" theta angles within a system.

D. Wilderness Rescue Level Mountain Rescue

1. Demonstrate the ability to adequately package a victim for the following situations or environments:
 - a. vertical evacuations (litter vertical and horizontal)
 - b. horizontal evacuations (low crawls, drags, etc.)
 - c. low angle evacuations
 - d. confined space
 - e. cold or wet weather
 - f. water evacuations
 - g. improvised patient tie-ins and rigging
 - h. helicopter hoist operations
2. Demonstrate the ability to properly assemble and rig the litter, load and secure a patient properly into the litter and execute the following:
 - a. semi-technical evacuations
 - b. vertical evacuation with one rope (top brakes)
 - c. vertical evacuation with two ropes (top brakes)
 - d. vertical evacuation with one rope, litter vertical
 - e. helicopter hoisting
 - f. confined space
 - g. low angle
4. Demonstrate the ability to rig and use the following haul systems:
 - a. simple Z-haul (3:1) and piggyback Z haul
 - b. simple 4:1 and piggyback 4:1 haul
 - c. offset vertical counterweight haul
 - d. brute force
5. Demonstrate the ability to rig, tighten and use horizontal and diagonal high-tension (Tyrolean) traverse lines for personnel, equipment and patients in litters including:
 - a. single highline
 - b. double highline
 - c. self equalizing double highline
 - d. redundant single pulleys vs. knot passing pulleys
6. Demonstrate the ability to use and pass knots through the following braking system:
 - a. tree wrap

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- b. figure 8 descender
 - c. multiple carabiner brake
 - d. rappel rack brake
7. Demonstrate the rescue and lowering of a person:
 - a. ascending on a static line, using the same static line ascenders, and a rappel device
 - b. on the end of a belay line, using one's own static line for access and lowering
 - c. Stuck in the middle of a rappel on a static line, using a separate static line
 8. Demonstrate the ability to rig and use an improvised Tragsitz type harness on a mixed vertical and diagonal lowering given a length of 2" webbing and assorted slings and carabiners.
 9. Demonstrate the ability to tie a victim into the end of a line securely for vertical lifting given a conscious victim without severe injuries or illness and only the end of a haul line.
 10. Describe the phases of extrication, list and describe standard field-portable forcible entry and extrication tools and describe their use in extrication from light aircraft.
 11. Demonstrate the ability to set up and mark a rural landing zone and a wilderness helispot, to guide a helicopter in with standard body signals, to load a patient into a helicopter and to serve as ground crew leader for a helicopter hoist evacuation.
 12. Demonstrate the appropriate use of proper rope calls.
 13. Demonstrate the ability to solve the following problems:
 - a. inverted self rescue
 - b. fouled descender (e.g., clothing caught)
 - c. failed ascender
 - d. blind assent (simulate light failure at night)
 - e. blind decent
 - f. passing knots on rappel
 - g. passing knot on assent
 - h. down climb with ascenders
 - i. rappel to climb changeover
 - j. climb to rappel changeover
 - k. change ropes on ascend and rappel
 14. Demonstrate the ability to carry out a solo rescue of an injured climber/rappeller

IV. TEST METHODS**A. Written test**

1. The test consists of at least 100 multiple choice questions representative of the material presented in the course.
2. The test is administered at the beginning of the course, as a pre-test, and again at the end of the course as a post-test. Students who pass the pre-test are not required to take the post-test. Passing score is 80 percent.
3. Failure of the post-test constitutes failure of the course.

B. Practical test

1. The practical test consists of several stations that test certain skills presented in the course. Students are requested to perform those skills in the presence of an examiner.
2. Each station has specific requirements and well defined criteria for pass or fail.
3. A student who fails a practical station(s) may repeat that station(s) once on the same day. Failure of a second attempt constitutes failure of the course.

C. Retesting

1. Students who complete the required training, but fail either the written or practical test, are eligible for retesting.
2. Each student is responsible for making arrangements for retesting with the course coordinator on an individual basis.
3. If a student fails any portion of a retest, the record reverts to inactive and the course must be repeated or challenged.

V. CERTIFICATION PROCEDURES

- A. The following criteria must be met in order to qualify for certification as a Wilderness Rescue Technician.
1. Attend a complete RT training course
 2. Pass the RT written test with a score of at least 80 percent
 3. Pass the RT practical test within the limits defined for each station
- B. Equivalent Training and/or Experience
1. Those individuals who, by virtue of past training and experience, possess the necessary knowledge and skills may be permitted to challenge the written and practical exams and be certified as an RT, provided all prerequisite requirements are met.
 2. Members of recognized search and rescue organizations who receive their training from that organization and who hold a valid organizational certification may apply for DES certification as an RT, provided the organization's training standards meet or exceed the DES program standards for RT certification. These applications will be processed on a case by case basis.
- C. Certification
1. Upon successful completion of training, a certificate will be issued to the trainee by DES. This certificate does not constitute a license to practice the skills taught in the training program, but signifies only that the person holding the certificate has met an established standard of knowledge and performance and should be able to function in a competent manner at the level indicated on the certificate.
 2. Certification will be valid for three (3) years from date of issue.

VI. RECERTIFICATION PROCEDURES

- A. Notification of Expiration of Certification
1. Six (6) months before the expiration date, a letter will be sent noting the expiration date and defining the recertification procedure.
 2. A second letter will be sent during the expiration month stating that if recertification is not accomplished within six (6) months of expiration, certification will be dropped.
 3. Six (6) months after expiration, the record will revert to inactive.
- B. Procedure

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1. Certification may be renewed by successfully completing the written and practical tests, and meeting any other requirements for certification for Wilderness Rescue Technician that exist at the time of recertification.
2. Each person is responsible for making individual arrangements for recertification testing with the DES SAR Coordinator.
3. Certification will be valid for (3) years from date of issue.
4. Wilderness Rescue Technicians must pass an annual review of his/her Training Log.

I. RESCUE SPECIALIST

A) General -

- 1) A Rescue Specialist must be able to evaluate a rescue situation and select the most appropriate techniques and systems, safety considerations and alternatives. To be eligible for Rescue Specialist, an applicant must have been a State Certified Field Team Member and a member in good standing of a recognized rescue organization for at least one year, must possess the personal equipment necessary to serve as an Attendant-in-Charge (of a patient), as a Field Team Member for a winter search task, and as an evacuation team member. In addition, the candidate must have participated in two State search missions (or one search and two full-scale State simulated searches, or four full-scale State simulated searches) within the two years previous to application for Rescue Specialist.
- 2) Rescue Specialists must complete annual continuing training requirements and pass an annual review by the ?? Training Officer. In addition, each Rescue Specialist must participate in an actual State mission or two simulated State missions every year.
- 3) RS must satisfactorily explain his/her duties and responsibilities, which include:
 - a) Assembling and rigging necessary technical equipment, including litters
 - b) Supervise all roped travel
 - c) Advise the TL on all technical aspects of an evacuation
 - d) Enforce safety standards

B) Rescue Level Survival and Wilderness Travel

- 1) Demonstrate the ability to travel cross-country competently in a middle Appalachian wilderness area in the winter, including:

- a) winter stream and ice crossing;
 - b) traveling deep powder snow;
 - c) using ice-axe and crampons on steep snow; and
 - d) belaying in snow with an ice axe.
- 2) Demonstrate the ability to bivouac overnight in winter with normal SAR pack gear, and to carry out mission tasks for a full day following.
 - 3) Demonstrate competence in ice-axe self-arrest.
 - 4) Demonstrate the ability to properly and safely use the techniques of free lead climbing, and the ability to lead 5.0 (Sierra Club Scale) rock in summer, spring, or fall.
 - 5) Demonstrate the ability to traverse horizontal caves safely and competently, to climb cable ladders, rappel and ascend static lines properly and efficiently, and to troubleshoot common caving gear such as carbide lamps.

C) Rescue Level Search

- 1) Define and explain the important implications of the following search concepts:
 - a) passive search;
 - b) active search;
 - c) subject finders;
 - d) clue finders;
 - e) cutting for sign;
 - f) binary search; and
 - g) repeated non-thorough grid search methods.
 - h) PLS, LKP, POD
- 2) Given a lost person search scenario, a topographic map of the area, and a State OPSKIT, set up initial search priorities, using standard Strategy Map symbols. Describe the application of each of the following to the problem:
 - a) the statistical approach;

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that proper record-keeping is essential for the integrity of the financial system and for the ability to detect and prevent fraud.

2. The second part of the document outlines the specific requirements for record-keeping, including the need for clear, legible entries and the requirement to retain records for a minimum of seven years. It also discusses the importance of regular audits and the role of internal controls in ensuring the accuracy of the records.

3. The third part of the document provides a detailed description of the record-keeping system, including the types of records to be maintained and the methods for their storage and retrieval. It also discusses the importance of data security and the need to protect records from unauthorized access and destruction.

4. The fourth part of the document discusses the role of the record-keeping system in the overall financial management process. It highlights the importance of accurate records for the preparation of financial statements and for the identification of trends and anomalies in the data.

5. The fifth part of the document provides a summary of the key points discussed in the document and offers recommendations for the implementation of the record-keeping system. It emphasizes the need for ongoing training and support for staff involved in the system.

6. The sixth part of the document discusses the importance of the record-keeping system in the context of the overall financial management process. It highlights the need for a comprehensive and integrated system that can provide accurate and timely information to management and other stakeholders.

7. The seventh part of the document provides a final summary of the key points and offers recommendations for the implementation of the record-keeping system. It emphasizes the need for ongoing training and support for staff involved in the system.

8. The eighth part of the document discusses the importance of the record-keeping system in the context of the overall financial management process. It highlights the need for a comprehensive and integrated system that can provide accurate and timely information to management and other stakeholders.

9. The ninth part of the document provides a final summary of the key points and offers recommendations for the implementation of the record-keeping system. It emphasizes the need for ongoing training and support for staff involved in the system.

- b) the historical approach;
 - c) the simple containment approach, and
 - d) the Mattson consensus method.
- 3) Given a search scenario, a State OPSKIT, and a completed Strategy Map, use the Task Assignment Procedure to generate a set of appropriate tasks to complete the initial search strategy with given resources; fill out a Task Assignment Form properly for each task; and create a Status map, using standard symbols.
 - 4) Given a matrix of search areas with POA and area for each, and a set of search resources with POD and search rate for each, assign resources to tasks and calculate overall POD, including some areas with multiple coverage.
 - 5) Given a search scenario and a State OPSKIT, calculate the Time-Frame For Survival (TFFS) and explain its significance and uses.
 - 6) Describe in outline the standard procedure for a search for a missing light civil aircraft, including the role and structure of the CAP and the appropriate role of ground SAR resources.
 - 7) Demonstrate the ability to competently lead a team on an ELT search task.
 - 8) Demonstrate the ability to use the State standard logging procedure and message forms and the ability to use and update a Communications Systems Chart.
 - 9) Describe the characteristics of HF, State VHF-FM, Public Service VHF-High and VHF-Low, CB, and amateur 2 meter radio communications that are relevant to search communications planning.
- D) Rescue Level Ropework
- 1) Describe the different rope constructions and the advantages and disadvantages of each

- a) Describe the working and breaking strengths for each type
- 2) Describe the proper care of ropes including:
 - a) Washing
 - b) Drying
 - c) Storing
 - d) Inspecting
 - e) Retirement criteria
- 3) Describe the effects of the following agents on nylon rope
 - a) Chemicals (petroleum, battery acids, etc)
 - b) Heat (including weld abrasion)
 - c) Sunlight
 - d) Aging
- 4) Demonstrate the ability to correctly tie, contour, and back up the following; and describe each in terms of strength, security, proneness to jamming, and appropriate and inappropriate uses;
 - a) bowline;
 - b) "double strength" bowline;
 - c) bowline-on-a-coil;
 - d) bowline-on-a-coil around anchors;
 - e) bowline-on-a-bight;
 - f) three-loop bowline;
 - g) overhand knot and overhand bend (water knot);
 - h) figure eight knot and loop and bend;
 - i) barrel knot and double fisherman's knot (barrel bend)
 - j) sheet bend and double sheet bend;
 - k) square knot;
 - l) butterfly knot;
 - m) anchor hitch;
 - n) clove hitch;
 - o) taut-line hitch;
 - p) the ASRC seat harness;
 - q) the Parisian bandolier chest harness; and

- r) the crossed-loop chest harness.
 - s) Prusik
 - t) Basic Swiss seat
 - u) Figure eight on a bight
 - v) one-way knot
 - w) Frost knot
- 5) Demonstrate the ability to rappel properly with the following methods; and discuss the advantages, disadvantages, and appropriate uses of each:
- a) the arm rappel;
 - b) the Dulfersitz;
 - c) single and double-wrap on a figure-8 descender;
 - d) double carabiner/brake bar rappel
 - e) carabiner wrap rappel;
 - f) six carabiner rappel;
 - g) Munter hitch rappel; and
 - h) long rappel rack rappel.
 - i) Petzl stops
- 6) Demonstrate the ability to rig and use multiple-step pulldown rappels.
- 7) Assemble and ascend properly with the following devices, and describe each in terms of strength, security, holding strength, special hazards, and appropriate uses:
- a) Prusik knots and 3 wrap Prusik knots;
 - b) Bachman knots;
 - c) RBS and Headdon knots with both rope and webbing;
 - d) Gibbs ascenders; and
 - e) Jumar ascenders.
 - f) CMI
 - g) Cloggs
 - h) Petzls
- 8) Describe the proper selection, placement, advantages, disadvantages, safety issues and uses of pulleys including:

- a) Size (in relation to the rope)
 - b) Configuration (Double, etc)
 - c) Bearings versus Bushings
 - d) Use of carabiners versus pulleys
- 9) Tie and discuss the appropriate uses of the following
- a) "escape ascenders"
 - b) French prusik
 - c) end-of-rope prusik.
- 10) Construct and ascend with following ascending rigs:
- a) Texas and Texas Y rigs;
 - b) classic three-knot rig;
 - c) three-cam "ropewalker" rig;
 - d) modified climber's Jumar/Etrier rig; and
 - e) Mitchell system.
- 11) Demonstrate the ability to belay confidently and competently with:
- a) the sitting hip belay;
 - b) the standing hip belay
 - c) tree wrap belay;
 - d) the Munter hitch; and
 - e) the belay plate.
 - f) Bottom belays
 - g) Figure eight/Rescue eight
- 12) Demonstrate the ability to coil and tie-off ropes in:
- a) a mountaineer's knee coil;
 - b) a lap coil;
 - c) a multiple-strand chain coil;
 - d) a quick-release chained "rescue" coil; and
 - e) a skein "backpack" coil.
- 13) Demonstrate the ability to rig static lines in diverse situations, including:

- a) casting lines through brush or past obstructions;
 - b) defouling lines;
 - c) assessing abrasion hazards, padding, and rigging offset lines with directional anchors;
 - d) rigging horizontal traverse lines; and
 - e) rigging diagonal lines.
- 14) Demonstrate the ability to select, place, and rig anchors both for individual use and for evacuations, including:
- a) the evaluation of and use of trees and rock formations including tree selection criteria;
 - b) the placement of and evaluation of mechanical anchors including:
 - chocks, bongs, nuts, hexcentrics, stopper
 - pitons,
 - expansion bolts
 - friends;
 - c) tree wrap rigging (tensionless);
 - d) the proper self-equalizing of two anchors with a loop sling;
 - e) the proper self-equalizing of several anchors
 - f) the proper use of pickets and snow pickets for anchors; and
 - g) the use of deadmen for anchors.
 - h) the advantages and disadvantages of "rigging high"
 - i) explain the the concepts of self-equalizing vs pseudo-selfequalizing, load sharing vs load shifting
 - j) aiming the anchor system and evaluating the fall line
 - k) hidden theta angles as they relate to anchors
 - l) selection criteria and evaluation techniques for urban anchor systems.
- 15) Demonstrate the ability to use any of the rappel methods described in item 2 (except the Dulfersitz and arm rappel), any of the ascenders described in item 3, and any of the ascending systems described in item 5, to do the following;
- a) rappel and ascend past overhangs;
 - b) rappel and ascend through narrow chimneys;

- c) rappel and ascend on diagonal slopes;
 - d) tie off, rest, and invert (both rappel and ascend);
 - e) rappel and ascend past knots;
 - g) change from rappel to ascend and from ascend to rappel while on the rope;
 - h) rappel/ascend diagonal traverses and slack horizontal traverses.
- 16) Describe several different types of abrasion protect, advantages and disadvantages of each and how each is used, including:
- a) Fire hoses
 - b) Carpet pads
 - c) canvas bags
 - d) Garden hose
 - e) Edge rollers
 - f) Stand off pulley systems
- 17) Describe the effects of Theta angles and how they relate to rope and anchor systems.

E) Rescue Level Mountain Rescue

- 1) Using the local Group's regular Stokes litter, adequately package a victim for the following situations or environments:
- a) Vertical evacuations (litter vertical and horizontal)
 - b) Horizontal evacuations (low crawls, drags, etc.)
 - c) Low angle evacuations
 - d) confined space
 - e) cold/wet weather
 - f) water evacuations
 - g) improvised patient tie-ins
- 2) Using the local Group's regular Stokes litter and rigging, assemble the litter, load and secure a patient properly into the litter, and rig the litter properly for, and execute the following:

- a) semi-technical evacuations;
 - b) vertical evacuation with one rope (top brakes) ;
 - c) vertical evacuation with two ropes (top brakes) ;
 - d) vertical evacuation with one rope, litter vertical;
 - e) vertical evacuation with one rope and traveling brakes;
 - f) helicopter hoisting
 - g) confined space
 - h) low angle
 - i) litter bearers on separate belay lines
- 3) Using a standard bare Stokes litter and an assortment of slings and carabiniers, demonstrate all skills specified in (1), but using improvised rigging.
- 4) Rig and demonstrate the use of the following haul systems:
- a) Yosemite haul and 2:1 and 4:1 (theoretical) Yosemite hauls;
 - b) simple Z-haul (3:1) and piggyback Z haul;
 - c) simple 4:1 and piggyback 4:1 haul;
 - d) 6:1 and 9:1
 - e) offset vertical counterweight haul and brute force
 - f) Brute force
 - g) block and tackle on a tripod, jin pole and boom
- 5) Rig, tighten, and use horizontal and diagonal high-tension (Tyrolean) traverse lines for personnel, equipment and patients in litters including:
- a) Single highline
 - b) Double highline
 - c) Self equalizing double highline
 - d) redundant single pulleys vs knot passing pulleys
- 6) Use and pass knots through the following braking system:
- a) tree wrap;
 - b) figure 8 descender;

- c) multiple carabiner brake; and
 - d) rappel rack brake.
- 7) Demonstrate the rescue and lowering of a person:
- a) ascending on a static line, using the same static line ascenders, and a rappel device;
 - b) on the end of a belay line, using one's own static line for access and lowering;
 - c) stuck in the middle of a rappel on a static line, using a separate static line.
- 8) Given a length of 2" webbing and assorted slings and carabiniers, rig and use a Tragsitz type harness on a mixed vertical and diagonal lowering.
- 9) Demonstrate the ability to use standard third-man technique to load a patient into a litter on a vertical wall.
- 10) Given a (simulated) conscious victim without severe injuries or illness and only the end of a haul line, tie the victim into the end of the line securely for a vertical lifting.
- 11) List and explain the actions to be taken upon entering the scene of an aircraft crash.
- 12) List and describe the phases of extrication, list and describe standard field-portable forcible entry and extrication tools, and describe their use in extrication from light aircraft.
- 13) Demonstrate the ability to safely and properly employ the tools and techniques described in (11).
- 14) Demonstrate the ability to set up and mark a rural landing zone and a wilderness helispot, to guide a helicopter in with standard body signals, to load a patient into a helicopter, and to serve as ground crew leader for a helicopter hoist evacuation.

- 15) Demonstrate the appropriate use of proper rope calls/commands.
- 16) Demonstrate the ability to solve the following problems:
 - a) Inverted self rescue
 - b) Fouled decender (e.g. clothing caught)
 - c) Failed ascender
 - d) Blind Assent (simulate light failure at night)
 - e) Blind decent
 - f) Passing knots on rappel
 - g) Passing knot on assent
 - h) Down climb with ascenders
 - i) Rappel to climb changover
 - j) Climb to rappel changeover
 - k) Change ropes on assend and rappel
- 17) Demonstrate the ability to carry out a solo rescue of an injured climber/rappeller
- 18) Demonstrate the ability to safely climb a cable ladder

F) Rescue Level Emergency Medicine

- 1) Each Rescue Member must be a State-Certified Basic Wilderness Medical Technician.