

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF EMERGENCY MANAGEMENT
SEARCH AND RESCUE PROGRAM

STANDARDS FOR
FIELD TEAM SIGNCUTTER

Second Edition

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**COMMONWEALTH OF VIRGINIA
DEPARTMENT OF EMERGENCY SERVICES
SEARCH AND RESCUE PROGRAM
STANDARDS FOR “FIELD TEAM SIGNCUTTER”**

I. SCOPE

A. Purpose

These standards were developed to define the minimum qualification requirements necessary for certification as a Field Team Signcutter (FTS) by the Commonwealth of Virginia’s Department of Emergency Management (VDEM).

The certification issued under these standards is a requirement only for those personnel who wish to voluntarily participate in the search and rescue program of the Virginia Department of Emergency Management at the level indicated in this standard.

Safety must always be a concern before and during any task assigned. All searchers have the right and duty to refuse or to abort any task in which safety is a concern to them or their team members.

B. Functions

The Field Team Signcutter is willing to perform the following functions in the general environment of the Commonwealth of Virginia any time of the year, day or night, and in most weather conditions and terrain experienced in the Commonwealth of Virginia. In order to accomplish this, the Field Team Signcutter will be able to:

1. Search for missing persons in wilderness, rural, suburban and urban areas, using the rudimentary art and skills associated with awareness, signcutting and tracking addressed in these standards, as a member of a ground search and rescue team that has a Memorandum of Understanding (MOU) with VDEM.
2. Assist, when needed, in missing person investigations on searches to help obtain necessary signcutting and tracking information.
3. Interface with and instruct other searchers, search staff and local agencies on the abilities of Field Team Signcutters, and FTS team tactics that might be utilized.
4. Demonstrate the ability to explain to other searchers and staff on being clue, sign and track aware and the importance of each.
5. Navigate accurately on land, day or night in most weather and terrain conditions common to the Commonwealth of Virginia.
6. Survive an unexpected wilderness emergency.
7. Is willing to perform other activities which may be required based upon the FTS’s knowledge, training, experience and base’s needs including, but not limited to, working in base, working with other ground teams, and assisting ground rescue teams in the evacuation of missing subjects.

II. TERMINOLOGY

The definitions listed here are for the purpose of these standards only. They may or may not reflect the definitions used by other individuals, groups, agencies or publications. These definitions are in rudimentary terms.

Clue - Indication of a person's presence, specifically that of the missing person including scent, eyewitness accounts, noise, or items of personal usage, i.e. clothing, equipment, medicine, etc. C

Field Team Leader (FTL) - The Leader of a Ground Search and Rescue Team who has been certified at that level by the Commonwealth of Virginia's Department of Emergency Management (VDEM).

Field Team Member (FTM) - A Member of a Ground Search and Rescue Team who has been certified at that level by VDEM.

Field Team Signcutter (FTS) - A member of a Ground Search and Rescue Team who has been certified at that level by VDEM.

Field Team Signcutter Course Coordinator - An individual who oversees the operation of the Field Team Signcutter Course for the VDEM. The FTS Course Coordinator is appointed by the VDEM Search and Rescue (SAR) Coordinator.

Probability of Detection-c (PODc) – The 'percentage of probability' that if clues from a missing subject were actually in the search area, the searcher would have located (detected) those clues by the search effort. Ie. c = clues

Sign - Any disturbance(s) that is/are unnatural to the environment and are unidentifiable as to its maker.

Signcutting - The art and science of locating clues, sign and tracks.

State Search and Rescue (SAR) Coordinator - The person designated by the Director of VDEM to coordinate the Search and Rescue program administered by VDEM and to coordinate overall State SAR operations when required or requested.

Track – An identifiable sign. A track should be identifiable as to its maker. Usually a track is a deformation of a surface or substrate. It can also be the transfer of material to another surface such as soil coming from a subjects shoe onto the substrate or a hard surface.

Tracking - The finding, identifying, interpreting and following of clues, sign and tracks and the study and training of other tracking related subjects.

Virginia Department Of Emergency Management (VDEM) - Agency that provides support, training, certification, group notifications and guidance for search and rescue to Search and Rescue (SAR) Groups and local governments and agencies. VDEM also issues MOUs with SAR Groups.

III. COURSE ADMISSION CRITERIA

A. Age

The minimum age for attending the FTS Course and FTS Certification is eighteen (18).

B. Affiliation and Experience

1. Applicants for FTS training must hold an active membership in a professional, paid or volunteer, Search and Rescue (SAR) group, or an established emergency services organization or Emergency Management Services such as a law enforcement agency, rescue squad, or a fire department.
2. Applicants must be currently VDEM certified as either a Field Team Member (FTM) or a Field Team Leader (FTL), or their equivalent as recognized by the Commonwealth of Virginia's Department of Emergency Management Search and Rescue Program. Proof of such certification must be presented along with the applicant's application for admission into the FTS Course.
3. Applicants, at the request of VDEM, must agree to allow VDEM to perform a background check.
4. FTS students, at the future requirement of VDEM, must hold and or maintain a current CPR and First Aid Certification recognized by VDEM before being admitted into the FTS Course.

IV. KNOWLEDGE AND PERFORMANCE EXPECTATIONS

The FTS candidate must demonstrate a working understanding of the items listed under each subject and must be able to demonstrate the ability to perform and/or discuss the skills herein. Specific written and field tests have been designed to evaluate the candidate's knowledge and performance skills.

A. Misconceptions

Describe and clarify ten misconceptions about tracking as it relates to search and rescue.

B. Signcutting Tools

Describe the following signcutting tools, demonstrate their usage, and explain or show how they may be improvised:

1. Tracking/signcutting stick
2. Measuring tape
3. Notebook/Pen Pencils

4. Craft sticks or other track markers, including reflective markers.
5. String
6. Indexing
7. Track Traps, Natural and Man Made
8. Mirror
9. Sunlight/Moonlight
10. Small and large light sources/colored lenses/headlamps
11. Sun Glasses – Colors
12. Night Vision Goggles
13. Hand-Held Radios
14. Cell Phones
15. Flash Cards
16. Dividers and Calipers
17. Magnifying glass
18. Binoculars
19. Tweezers
20. Flagging tape
21. Aluminum Foil
22. Camera
23. Casting materials

C. Tracking Stick

Describe and demonstrate the usage of the tracking stick.

1. Describe and demonstrate what may be used as a tracking stick.
2. Describe what, and demonstrate how, measurements are placed on a tracking stick.
3. Explain the disadvantages of using o-rings, rubber bands, etc. on one's tracking stick.
4. Explain the difference in measuring an animal gait vs. a human stride.
5. Explain what one must not use one's tracking stick for and why.

D. Using Light Sources

1. Describe (normally) the best times of day to signcut using the sun.
2. Explain and demonstrate ways to overcome overhead sun, washout and night signcutting/tracking.
3. Explain and demonstrate how to approach a sign/track using the sun and other light sources.
4. Define and demonstrate the "Angle of Vision."
5. Define and demonstrate "Side Heading".
6. Explain and demonstrate how to make your own "Sun" and under what conditions it may or may not work.

E. Log Book

1. Explain the importance and legal issues of maintaining a logbook and writing After Action Reports.
2. Describe and display what information should be recorded in one's log book including but not limited to:
 - A. Six track measurements
 - B. Six stride measurements
 - C. Interview questions including but not limited to:
 - a. Callout information
 - b. Subject information
 - c. Weather information – past, current, future
 - d. Footwear information
 - D. Sketches of sign, tracks and surrounding area(s)
 - E. Explain the importance of learning to draw/sketch

F. Awareness

1. Explain the importance of awareness.
2. Describe eight negative effects on awareness.
3. Explain eight ways to become more clue/sign/track aware.
4. Explain how each of the senses is important and how each is used in awareness.
5. Describe and demonstrate how and why a FTS would use "Wide Angle Vision."
6. Describe seven basic elements of visual perception and demonstrate the ability to detect each.
7. Explain the problems of locking in on a track.
8. Explain and demonstrate the ability of how to overcome locking in on a track.
9. Explain and demonstrate the ability to scan your search area.
10. Explain baselines and when and how they are used.
11. Explain and demonstrate the ability to instruct other search team members on being more aware and how to search for sign.

G. FTS Search Tactics and Related Knowledge

1. Explain Inventory and Elimination.
2. Describe and show what an FTS is looking for.
3. Describe and show where an FTS may look for sign and tracks.
4. Explain the different types of track traps and demonstrate the ability to utilize them.
5. Explain and demonstrate the usage of the "36-Inch Detection Method".
6. Explain and demonstrate how one approaches track traps, sign and tracks.
7. Explain why and demonstrate the usage of the path of most resistance.
8. Explain and demonstrate how one may physically mark and protect a clue, sign or track.

9. Describe, and demonstrate the ability to obtain the information an FTS needs from base, other searchers, family, friends and other tracking personnel.
10. Explain and demonstrate where the FTS's tasks begin and why.
11. Describe how to search for downed aircraft.
12. Explain who may get briefed and debriefed and why.
13. Describe, and demonstrate the ability to report to base and others, the information a FTS should report back to his/her debriefer and other tracking personnel.
14. Describe how to work as or with:
 - a. Member of a Ground Search Team
 - b. Member of a Hasty Ground Search Team
 - c. Member of a Dog Team
 - d. Member of an Evacuation Team
 - e. Base Personnel.
 - f. Local Responsible Agent.
 - g. Other tracking personnel.
 - h. Other personnel at a search.
15. Describe how and demonstrate the ability to perform the following:
 - a. Feature Signcutting
 - b. Perimeter Signcutting
 - c. Cross Signcutting
 - d. Expanding and Collapsing Circle Signcutting
 - e. Leapfrog and Accordion Tracking
 - f. PLS/LKP Signcutting
16. Explain and demonstrate the ability to instruct other search team members on the tactics an FTS may use.
17. Explain and demonstrate how one would physically follow a clue/sign/track trail.
18. Describe and demonstrate the position of a FTS on a Ground Search Team and explain when and why that may change.
19. Describe and demonstrate ways to protect the Point Last Seen (PLS) or the Last Known Position (LKP).
20. Describe how an FTS may be used on a team with other tracking personnel.
21. Describe and demonstrate the ability to use other search resources in FTS tactics.
22. Demonstrate the ability to locate relatively easy tracks among other tracks and sign.
23. Explain and demonstrate ways one may overcome a trashed PLS or LKP.
24. Explain why signcutting/tracking may or may not work for one on any given day.
25. Explain the number one "Rule" in signcutting and tracking.
26. Explain why FTS are forced to break that rule and what the consequences of such actions may be.

H. Soil

1. Describe soil solids.
2. Describe pore space.
3. Describe the contents of soils and their effects on tracks.
4. Explain how moisture and air may affect sign or tracks.
5. Explain how different soil types can affect tracking, aging and pressure releases.

I. Night Signcutting

1. Explain why searchers may search inadequately at night.
2. Explain and demonstrate why signcutting may be easier at night than during the day.
3. Explain and demonstrate ways to signcut at night more effectively.
4. Explain and demonstrate how to use one's lights effectively.
5. Explain the dangers of night signcutting.

J. Footwear Information

1. Describe the different types of footwear and how this information may or may not be of usage to a FTS.
2. Describe problems with characterizing outsoles according to types.
3. Describe the dangers of determining unknown measurements of a track (footwear) based upon a known, or reported, shoe size.
4. Describe the problems with "We have the same shoe that the missing person is wearing" type statements from friends and relatives.
5. Describe and demonstrate the dangers of describing track or outsole information over the radio.
6. Explain the importance of a track identification form.

K. Aging

1. Explain the two main reasons that sign/tracks age.
2. Describe four influences that help create aging.
3. Describe other ways (subcategories of influences) that tracks may age.
4. Explain foot indexing, describe when it is used, and demonstrate the ability to use it correctly.
5. Explain finger indexing, describe when it is used, and demonstrate the ability to use it correctly.
6. Explain how old tracks can look new and how new tracks can look old.
7. Describe the aging time flow.
8. Describe and demonstrate ways to determine the relative age of clues, sign or tracks.
9. Explain why trying to age sign or tracks one of the most dangerous aspects of signcutting/tracking in search and rescue.
10. Explain tactile aging, when and how utilized.
11. Explain why it is better to utilize both hands (fingers) when tactile aging.
12. Describe at least four different tactile comparisons one can make when aging tracks, sign, index marks and baselines.

L. Signcutting/Tracking in Soils

1. Describe which of, and how, the basic elements of visual perception are involved with finding sign/tracks in/on soils.
2. Demonstrate the ability to explain and discover eight different ways of detecting sign/tracks in/on soils.
3. Demonstrate the ability to give a relative age and to determine a direction of travel in/on soils.
4. Explain weather influences on soils.
5. Explain time of year, time of day, location and outside influences on soils.

M. Signcutting/Tracking in Leaves and Pine Needles

1. Describe how the basic elements of visual perception are involved with the finding of sign/tracks in/on leaves and pine needles.
2. Demonstrate the ability to explain and discover eight different ways of detecting sign/tracks in/on leaves and pine needles.
3. Demonstrate the ability to give a relative age and to determine a direction of travel in/on leaves and pine needles.
4. Explain weather influences on leaves and pine needles.
5. Explain time of year, time of day, location and outside influences on leaves and pine needles.

N. Signcutting/Tracking in Grass

1. Describe how the basic elements of visual perception are involved with the finding of sign/tracks on/in grass.
2. Demonstrate the ability to explain and discover eight different ways of detecting sign/tracks on/in grass.
3. Demonstrate the ability to give a relative age and to determine a direction of travel on/in grass.
4. Explain weather influences on grass.
5. Explain time of year, time of day, location and outside influences on grass.
6. Explain how the sun may be used while signcutting on grass.

O. Signcutting/Tracking in Low Vegetation

1. Describe how the basic elements of visual perception are involved with the finding of sign/tracks in/on low vegetation.
2. Demonstrate the ability to explain and discover six different ways of detecting sign/tracks in/on low vegetation.

3. Demonstrate the ability to give a relative age and to determine a direction of travel in/on low vegetation.
4. Explain weather influences on low vegetation.
5. Explain time of year, time of day, location and outside influences on low vegetation.

P. Signcutting/Tracking on Gravel/Rocks/Stones

1. Describe how the basic elements of visual perception are involved with the finding of sign/tracks on/in gravel/rocks/stones.
2. Demonstrate the ability to explain and discover six different ways of detecting sign/tracks on/in gravel/rocks/stones.
3. Demonstrate the ability to give a relative age and to determine a direction of travel on gravel/rocks/stones.
4. Explain weather influences on gravel/rock/stone.
5. Explain time of year, time of day, location and outside influences on gravel/rock/stone.

Q. Signcutting/Tracking on Frost/Dew/Sleet/Snow

1. Describe how the basic elements of visual perception are involved with the finding of sign/tracks on/in frost/dew/sleet/snow.
2. Demonstrate the ability to five discover ways of detecting sign/tracks on/in frost/dew/sleet/snow.
3. Demonstrate the ability to give a relative age and to determine a direction of travel on frost/dew/sleet/snow.
4. Explain weather influences on frost/dew/sleet/snow.
5. Explain time of year, time of day, location and outside influences on frost/dew/sleet/snow.

R. Animal (Mammal) Tracking

1. Describe the following basic animal gaits.
 - a. Walking
 - b. Trotting
 - c. Galloping
2. Describe and demonstrate the ability to identify the following families' tracks and basic gaits:
 - a. Canine
 - b. Feline
 - c. Procyonidae
 - d. Ungulata
 - e. Ursus
3. Describe how and why an animal's track or gait may appear to be human.
4. Describe which animals' tracks and gaits may cause problems for the FTS and other searchers.
5. Describe why the following animal sign can be confused for human sign:

- a. Deer trails and beds
- b. Turkey scratches
- c. Animal tracks

S. Pressure Releases

1. Define pressure releases.
2. Explain how, and why, many pressure releases could be associated with one sign or track.
3. Describe what could cause, and demonstrate the ability to find each of the following pressure releases:
 - a. Cliff
 - b. Overhang
 - c. Cave-in
 - d. Slope
 - e. Rounded slope
 - f. Ridge
 - g. Peak
 - h. Crevasse
 - i. Fissure
 - j. Plume
 - k. Drag out
 - l. Ripping
 - m. Explosion
 - n. Crease
 - o. Reverse crease
4. Explain why the reading of pressure releases is one of the most dangerous aspects of signcutting/tracking in search and rescue.
5. Explain why one should have more than one track or sign to determine what the pressure releases may be signifying.

T. Human Strides

1. Describe four (4) common human strides and demonstrate the ability to detect each on easy soil conditions.
2. Describe the problems with determining what stride is being used and the dangers of misreading strides.
3. Describe what can be confused for human strides.
4. Explain why a 'known' stride may not assist a FTS.
5. Discuss how many clues, signs and tracks may be in a one mile radius from the PLS or LKP.

U. Uphill - Downhill - Sidehill Signcutting/Tracking

1. Describe and demonstrate ways to detect uphill, downhill and sidehill travel and determine a direction of travel.
2. Describe the possible variables and demonstrate how a person going up or down hill may use longer or shorter strides.
3. Describe variables that can affect the determination of the direction of travel.
4. Describe five different influences in ones' stride that may assist a FTS in reading each of the above.

V. Evasive Signcutting/Tracking

1. Discuss what type of missing subjects might use evasive maneuvers.
2. Describe seven ways to detect evasive tactics.
3. Describe five ways to counter evasive tactics used by a missing subject.
4. Describe and demonstrate the ability to detect four signs that a person may be walking backwards.
5. Explain at what point you would abort your task for a missing subject being evasive.
6. Explain at what point one would abort their task for a missing subject reported to be armed.

W. Other Required Knowledge and Skills

1. Explain the problems with "Shooting from the Hip."
2. Describe the following terms an FTS may encounter:
 - a. Conclusive evidence
 - b. Substantiating evidence
 - c. Conclusively human
 - d. Corroborant sign
 - e. Spoor
 - f. Ghost tracks
 - g. Bleeding eye syndrome
 - h. The Golden Circle/Prime sign area
 - i. Aerial spoor
 - j. Arch
 - k. Back Track
 - l. Degree of Wear
 - m. Baselines
 - n. Individual Characteristics
3. Explain what information is needed from people who state that they are trackers.
4. Explain some of the legal ramifications in signcutting/tracking mistakes.
5. Explain why a FTS must prove everything.
6. Describe why you shouldn't give interviews.

V. TEST METHODS

A. Written Testing

1. The written test consists of one hundred questions representative of the material presented in these standards. The VDEM SAR Coordinator must approve the written test. The written test may be either fill in the blanks or multiple-choice questions at the discretion of the FTS Coordinator or the VDEM SAR Coordinator.
2. The Written Test may be either Open Book or Closed Book at the discretion of the FTS Coordinator or VDEM SAR Coordinator
3. Only the VDEM FTS Course Coordinator, an FTS Adjunct Instructor, the VDEM SAR Coordinator or the VDEM SAR Program Chief Instructor may administer the FTS written test.
4. Passing score is eighty (80) percent of the questions answered correctly.
5. Failure of the written test constitutes failure of the course.
6. A student may still take the Field Evaluation Test at the end of the FTS Class even if they failed the written test, at the discretion of the FTS Coordinator on site, if time permits.
7. If a student fails the written test, the written test may be taken only once again and must be taken within three months, but no sooner than one month from the end of their FTS Class. If the written test has not been taken, or arrangements have not been made within three months, the student must retake entire course to obtain certification.
8. The student must contact either the FTS Course Coordinator or the VDEM SAR Coordinator to make arrangements for retesting the written test.
9. The FTS candidate retesting, must show proof that they have a current VDEM FTM for FTL Certification before taking the retest.
10. A copy of the test and answers will be kept on file with the VDEM SAR Coordinator.
11. The testing party will notify the VDEM SAR Coordinator of the students passing the retest.

B. Field Practical Testing

1. The practical testing consists of the candidate demonstrating her/his knowledge of, and the ability to use, these Standards. The practical test is addressed in Appendix B.
2. “Shooting from the hip”, the failure to index and age sign or tracks, not obtaining the needed information for the practical test, fails to obtain measurements, not signcutting the PLS, or LKP given to the candidate, and trashing the tracks, among others, will result in automatic failure of the field test. (Appendix B)
3. Only the FTS Course Coordinator, FTS Adjunct Instructors and those appointed by the FTS Course Coordinator and approved by the VDEM SAR Coordinator, as addressed in Appendix D, can evaluate practical testing.
4. A check sheet will be used for the practical field test evaluations.
5. A grade below 80% correct will constitute failure of the field test.
6. If a student fails the Practical Field Test, the Practical Test may be taken only once again and must be taken within three months, but no sooner than one month from the end of their

FTS Class. If the Practical Test has not been taken, or arrangements have not been made within three months, the student must retake entire course to obtain certification.

7. The student must contact either the FTS Course Coordinator or the VDEM SAR Coordinator to make arrangements for retesting the Practical Test.
8. The FTS candidate retesting, must show proof that they have a current VDEM FTM or FTL Certification before taking the retest.

C. Poor Performance Evaluation

1. Based upon the recommendation of the VDEM FTS Course Coordinator or by at least two VDEM FTS Adjunct Instructors, an FTS candidate may fail the course due to poor performance in any of the following but not limited to:
 - a. Failure of the search simulation.
 - b. Lack of classroom participation.
 - c. Lack of performing homework assignments.
 - d. Poor field work.
 - e. Shooting from the hip/student could be dangerous to a search
2. The FTS Instructors feel that the candidate does not possess the skills needed to meet these standards to become certified as an FTS.
3. Students, who fail due to poor performance in the classroom, homework assignments, or fieldwork, must retake the entire course. If this candidate passed both his/her written or practical tests, the candidate will not have to retake the written test, if passed, but must retake the Practical Field Test. The candidate must wait at least six months from their current class before retaking the FTS Course so that they may work on their skills.
4. Candidates who do not pass the FTS course because of poor performance in the classroom, homework assignments, field exercises, etc., and that candidate feels that he/she has been unfairly evaluated in any of the above listed areas, may request a hearing with the VDEM FTS Course Coordinator, the VDEM SAR Coordinator, the VDEM SAR Chief Instructor and one VDEM SAR Program Adjunct Instructor.
5. The decision of either passing or failing the candidate based upon the statements and documentation presented by the parties involved must be by a majority of those present, excluding the FTS Instructor(s) who failed the candidate and the candidate. The final decision will be arrived at without the FTS instructor(s) who failed the candidate and the candidate attending. The decision will be made before the end of the current training (class) session and will be binding on all parties.

VI. Equivalent Training and/or Experience

A. Equivalent Training and/or Experience

1. An individual who, by virtue of past training and experience, possesses the necessary knowledge and skills, may be permitted to challenge the written and practical testing, and upon passing will be certified as an FTS, provided all prerequisite requirements are met. The VDEM FTS Course Coordinator may only administer the written and practical testing. The practical test will be administered after the candidate passes the written test.
2. The individual that challenges the FTS course must meet III. Course Criteria

B. Certification

1. Upon successful completion of all training and when all paperwork has been turned over to VDEM, VDEM or the FTS Course Coordinator will issue a FTS Certificate to the trainee. 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 minimum standard of knowledge and performance and should be able to function in a competent manner at the level on the certificate.
2. Certification will be valid for three (3) years from the date of issue of the certificate.
3. VDEM may change the certification and recertification procedures to meet the VDEM requirements or any new State or Federal requirements. If any changes are made, they will be posted on VDEM's Web Site under Search and Rescue and the FTS Course Coordinator, the Virginia Search and Rescue Council President and the FTS Adjunct Instructors will be notified in writing. All personnel must be notified at least 120 days in advance of any changes.

VII. RECERTIFICATION PROCEDURES

A. Recertification

1. Within three months before expiration date, the FTS candidate must contact the VDEM SAR Coordinator to arrange a recertification date.
2. The candidate must take both the written and practical test for recertification.
3. The candidate must present a current VDEM FTM or FTL Certification before recertification.
4. If the candidate's certification has expired and they have not notified VDEM of their desire to recertify, their certification will be dropped and they must attend and successfully complete the entire FTS Course and testing to be certified as an FTS again.
5. The practical test may be evaluated only by the VDEM FTS Course Coordinator or by a VDEM FTS Adjunct Instructor.
6. The VDEM FTS Course Coordinator, a VDEM FTS Adjunct Instructor, the VDEM SAR Coordinator, or the VDEM SAR Chief Instructor may administer the written test.

B. Procedure

1. Certification may be renewed by successfully completing the written and practical tests, and meeting any other requirements for certification for Field Team Signcutter that exist at the time of recertification.
2. Each person is responsible for making individual arrangements for recertification testing with the FTS Course Coordinator or the VDEM SAR Coordinator as stated in VII, A.
3. Certification will be valid for three (3) years from date of issue.
4. VDEM may, at any time, change the certification and recertification procedures to meet their standards. If any changes are made, the changes will be posted on VDEM's Web Site under Search and Rescue and written notice will be given to the FTS Coordinator and the FTS Adjunct Instructors.

APPENDIX A – EQUIPMENT GUIDELINES

Guidelines for Suggested Minimum Personal Equipment for the FTS

These items are suggested equipment. Equivalent gear (and improvised signcutting tools) would be acceptable. This list should be adapted to seasonal and special conditions and the Field Team Signcutter's personal needs. Some of this equipment could be carried into the field but, at the least, should be available to the individual searcher in some form when on a search. This may include a vehicle cache or pack to be left at base. In addition to the current VDEM Field Team Member Equipment List, the FTS equipment and signcutting tools should include:

1. Tracking stick
2. Measuring tape
3. Craft sticks or other track markers with reflective tape at the top
4. String
5. Hand held mirror
6. Magnifying glass
7. Waterproof notebook/pad with pens or pencils
8. Tweezers
9. Light sources - large and small with removable color lenses.
10. Extra batteries
11. Flagging tape
12. Camera and extra film
13. Casting Materials
14. Map of task and Orienteering Type Compass - A GPS (Global Positioning System) may be carried with extra batteries, but map and compass (and the knowledge of their usage) are required.
15. Flash cards

NOTE: VDEM may update the Equipment List as needed or required.

APPENDIX B – FTS PRACTICAL TEST

“Field Team Signcutter” Practical Field Test.

The Field Team Signcutter candidate will be evaluated on his/her knowledge and performance during the practical field test. Criteria for Field Evaluators are addressed in Appendix D. The candidate will be responsible for answering any questions and demonstrating the ability to perform any and/or all of the skills listed in these standards. The candidate must answer questions and perform each of the following elements correctly. The testing elements are, but are not limited to, the following:

1. Candidate must describe and demonstrate the ability to use the signcutting tools, including the sun and other light sources, and how to improvise if needed.
2. Candidate must gather the information required for the practical task.
3. Candidate must signcut the PLS or LKP and demonstrate the usage of baselines and proper resetting of baselines.
4. Candidate must find the “known” track in a group of tracks.
5. Candidate must continually index the ground cover, sign/tracks.
6. Candidate must give a relative age of the sign and tracks.
7. Candidate must demonstrate the ability to take correct measurements of a track, record that information and then demonstrate the correct usage of a tracking stick as stated in # 1 above.
8. Candidate must determine the direction of travel of missing subject.
9. Candidate must demonstrate the ability to signcut the “known” sign or track for the minimum of one hundred (100) yards, with several cut-offs and several trail direction changes, over relative easy ground conditions using scanning and other awareness/signcutting/tracking skills and must keep resetting baselines.
10. Candidate must find at least one cut off from the known trail by the “missing subject” and determine the direction of travel.
11. Candidate must find the change of the direction of travel of the “missing” subject at two trail or road forks.
12. Candidate must use the pressure releases, if applicable, in these standards to determine stride changes, turns, and evasive tactics.
13. Candidate must describe the search resources that might be needed during and when their practical test has concluded.
14. Candidate must explain how to instruct the searchers on their team on how to be more clue/sign/track aware and how to work with a FTS.
15. Candidate must demonstrate the ability to interface with other searchers, search base and other need-to-know personnel.
16. Candidate must explain all their decisions to the evaluator.
17. Candidate must answer the questions and perform the skills/tasks that the evaluator requests, as addresses in these standards.

Automatic failure of the field test will occur if the candidate:

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1. Shoots from the hip - answers questions or makes decisions based upon lack of knowledge/proof or gives false or misleading answers. Some answers and decisions can be based upon a candidate's subjective judgment based upon a percentage of the "known" facts, but the candidate must correctly explain how their decision was reached.
2. Fails to correctly index and give a relative age sign and tracks in the test area.
3. Fails to correctly gather the needed information before starting, and during, the practical test.
4. Fails to correctly signcut the PLS or the LKP.
5. Fails to obtain a direction of travel.
6. Fails to determine the correct sign/track.
7. Trashes the search area.
8. Fails to follow the sign or track as determined by the FTS Coordinator on site.
9. Fail to keep establishing baselines.
10. Receives a grade on their field practical evaluation under 80%.

APPENDIX C – FTS INSTRUCTORS

Field Team Signcutter Instructors

Guidelines for the appointment of the FTS Course Coordinator, FTS Adjunct Instructors, FTS Field Evaluators and FTS Student Instructors for the Field Team Signcutter Course shall be issued and updated by VDEM as needed or required.

A. FTS Course Coordinator Criteria

It is recommended that the FTS Course Coordinator should:

1. Demonstrate the ability to: perform and have superior understanding, knowledge, training, and experience in the art and skills associated with signcutting, tracking (human and animal), and ground search and rescue (SAR) operations. The candidate must also demonstrate the desire, willingness and capability to take the training and knowledge of search and rescue signcutting and tracking to its highest levels within and outside the SAR community.
2. The candidate should also demonstrate the ability to:
 - a. Coordinate the Field Team Signcutter course (either on or off site)
 - b. Oversee and instruct the FTS Adjunct Instructors and Student Instructors.
 - c. Instruct all lectures and field exercises.
 - d. Lay out all field exercises and evaluate the candidates.
 - e. Appoint and recommend Instructors as addressed in Appendices C and D.
 - f. Formulate class schedules.
 - g. Submit to the VDEM SAR Coordinator the names of the candidates recommended for FTS Certification.
 - h. Interface with VDEM SAR Coordinator, the VDEM SAR Program's Chief Instructor and other VDEM Coordinators and Adjunct Instructors as needed.
 - i. Ensure that all training and instruction materials are up to date.
 - j. Uphold the integrity of the Field Team Signcutter Course, comply with the Field Team Signcutter Standards and ensure that these standards are being complied with and taught.
3. The candidate should be an active member of a search and rescue group with a Memorandum of Understanding (MOU) with the Virginia Department of Emergency Management.
4. The candidate should have passed the VDEM Field Team Member (FTM) course, the VDEM Field Team Leader (FTL) course, the VDEM Field Team Signcutter Course (FTS), and the Managing Land Search Operations (MLSO) course, or their equivalents as recognized by VDEM.
5. The candidate must have completed and passed the Instructors' Workshop sponsored by the VDEM.
6. The VDEM SAR Coordinator and the VDEM SAR Program's Chief Instructor should approve the candidate.

B. Field Team Signcutter Adjunct Instructor Criteria

To be appointed as a VDEM Field Team Signcutter Course Adjunct Instructor, it is recommended that the candidate meet the following criteria:

1. The candidate should demonstrate the ability to perform, and have in - depth knowledge of, the art and skills associated with signcutting, tracking, and search and rescue operations. The candidate should also demonstrate the desire, willingness and capability to take the training and knowledge of search and rescue signcutting and tracking to its highest levels within and outside of the SAR community.
2. The candidate should also demonstrate the ability to:
 - a. Conduct the FTS course in the absence of the FTS Course Coordinator
 - b. Supervise FTS Instructors (and Assistants) in his/her FTS class
 - c. Instruct all classroom and field lectures
 - d. Lay out all field exercises and evaluate the candidates
 - e. Submit to the VDEM SAR Coordinator and the FTS Course Coordinator, the names of the candidates recommended for FTS certification.
 - f. Interface with the FTS Course Coordinator, the VDEM SAR Coordinator and the VDEM SAR Program's Chief Instructor.
 - g. Uphold the integrity of the Field Team Signcutter Course, comply with the Field Team Signcutter Standards and ensure that these standards are being complied with.
 - h. Perform any tasks requested by the FTS Course Coordinator.
3. The candidate should be a member of a search and rescue group with a Memorandum of Understanding (MOU) with the Virginia Department of Emergency Management or a member of a SAR group that is a member of the Virginia Search and Rescue Council (VaSARCo).

The candidate should have passed the VDEM Field Team Member (FTM) course, the VDEM Field Team Leader (FTL) course, the VDEM Field Team Signcutter (FTS) course, and the Managing Land Search Operations (MLSO) course, or equivalents, as recognized by VDEM.
4. The candidate should have successfully completed the Instructors' Workshop sponsored by the VDEM.
5. The candidate should be recommended by the VDEM FTS Coordinator and approved by the VDEM SAR Coordinator and the VDEM SAR Program's Chief Instructor.
6. If the candidate has the training, knowledge, skills and experience, items 3, 4, and 5 above may be waived with written approval from the VDEM FTS Course Coordinator, the VDEM SAR Coordinator and the VDEM SAR Program's Chief Instructor.

C. Field Team Signcutter Student Instructor Criteria

To be appointed as a VDEM Field Team Signcutter Course Student Instructor, it is recommended that the candidate meet the following criteria:

1. The candidate should demonstrate the ability to perform, and have a general knowledge of the art and skills associated with signcutting, tracking, and search and rescue operations that are related to the lectures or to the field exercises which the candidate will be

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instructing and must have the ability to work under the direct supervision of the VDEM FTS Course Coordinator or an FTS Adjunct Instructor. The candidate must also demonstrate the desire, the willingness and capability to take the training and knowledge of search and rescue signcutting and tracking to its highest levels within and outside of the SAR community and to uphold the integrity of the Field Team Signcutter Course, comply to the Field Team Signcutter Standards and ensure that these standards are being complied with.

2. The candidate should be a member of a search and rescue group with a Memorandum of Understanding (MOU) with the Virginia Department of Emergency Management or a member of a SAR group that is a member of VaSARCo.
3. The candidate should have passed the VDEM Field Team Member (FTM) course, the VDEM Field Team Leader (FTL) course, the VDEM Field Team Signcutter (FTS) course, and the Managing Land Search Operations (MLSO) course, or equivalents, as recognized by VDEM.
4. The candidate should have passed the Instructors Workshop sponsored by the VDEM.
5. The candidate should be recommended by the VDEM FTS Coordinator and approved by the VDEM SAR Coordinator and the VDEM SAR Program's Chief Instructor.

APPENDIX D - EVALUATOR

Criteria for a Field Practical Test Evaluator for the “Field Team Signcutter” Course

1. Field Team Signcutter (FTS) Field Evaluators must demonstrate the ability to “lay out” field exercises and practical field tests so that the student(s) will attain useful information, training and experience.
2. Field Evaluators must be able to articulate to the FTS candidate the learning points on the field tasks and to assist the candidate in their understanding of “what” happened and “why” it happened on the field exercises.
3. Field Evaluators must have the knowledge, training, experience and skills above those in these FTS Standards.
4. Field Evaluators must demonstrate their knowledge of, and their ability to guide and instruct the FTS candidate on the field exercises and practical field test in the following, but not limited to, areas: signcutting, tracking, aging, pressure releases, search operations and tactics.
5. Field Evaluators must work patiently with students and other instructors.
6. Field Evaluators must demonstrate the ability to work one on one or with groups of students.
7. Field Evaluators can give only limited guidance to the student on the practical test.
8. Field Evaluators must not under any circumstance try to mislead the candidate.
9. The following Instructors are approved Field Evaluators:
 - a. FTS Course Coordinator
 - b. FTS Adjunct Instructors
10. The following must be approved, individually, by the FTS Course Coordinator in writing with a copy given to the VDEM SAR Coordinator, as Field Evaluators:
 - a. FTS Student Instructors
 - b. Others individuals, based upon they’re training and experience, whether associated or not associated with VDEM or the FTS course.
11. Should any Field Evaluator vary from any of the above resulting in negative results, the FTS Course Coordinator will revoke their Field Evaluation status in writing with copies given to the VDEM SAR Coordinator and VDEM SAR Program’s Chief Instructor.
12. Field Evaluators will communicate their evaluations on each student, which they have worked with to either the FTS Course Coordinator or the FTS Adjunct Instructor, who in turn, will inform the FTS Course Coordinator of the outcome of the evaluations and of any suggestions, concerns, problems or poor student performances.

APPENDIX E - FTS INSTRUCTOR RULES AND LIMITATIONS

The following is an overview of recommendations of the rules and limitations that the Virginia's Department of Emergency Management Search and Rescue Field Team Signcutter Instructors should follow.

A. Field Team Signcutter Course Coordinator

1. The FTS Course Coordinator must meet and follow the guidelines addressed in Appendixes B, C, D, and E.
2. The FTS Course Coordinator is responsible for reporting any instructor recommendations, schedule changes, course offerings, problems, and certification recommendations to both the VDEM SAR Coordinator and the VDEM SAR Program's Chief Instructor.
3. The FTS Course Coordinator reports to the VDEM SAR Coordinator and the VDEM SAR Program's Chief Instructor.
4. The FTS Course Coordinator may not change, reprint, or publish, nor give permission to change, reprint or publish any of the written material, either in part or in whole, of any Guidebook, Workbook, Manual or Book approved by VDEM for the Field Team Signcutter Course without the written permission of VDEM.

B. Field Team Signcutter Course Adjunct Instructor

1. FTS Course Adjunct Instructors must meet and follow the guidelines addressed in Appendixes B, C, D, and E.
2. FTS Course Adjunct Instructors must receive permission to make schedule changes and to offer and conduct the FTS course to SAR groups from the VDEM FTS Course Coordinator.
3. If the VDEM Course Coordinator is coordinating or instructing classes in which Adjunct Instructors are present, the Adjunct Instructors will be referred to as an FTS Instructor for that class.
4. FTS Adjunct Instructors may not appoint Instructors. All recommendations must be submitted to the FTS Course Coordinator and appointments will follow the Instructor Guidelines addressed in Appendix C.
5. FTS Adjunct Instructors are allowed to lay out, conduct and evaluate field exercises and the practical field test under the guidelines of Appendixes B and D.
6. FTS Adjunct Instructors operate under the supervision, direct or indirect, and report to the FTS Course Coordinator.
7. FTS Adjunct Instructors may not change, reprint, or publish, nor give permission to change, reprint or publish any of the written material, either in part or in whole, of any Guidebook, Workbook, Manual or Book for the VDES Field Team Signcutter Course without the written permission from VDEM

C. Field Team Signcutter Student Instructor

1. VDEM FTS Course Student Instructors must meet and follow the guidelines addressed in Appendix C, and Appendix E.
2. FTS Course Student Instructors are not allowed to make schedule changes or to offer the FTS course to SAR Groups without permission from the VDEM FTS Course Coordinator.
3. FTS Student Instructors may not appoint any Instructors. All recommendations must be submitted to the FTS Course Coordinator and appointments will follow the Guidelines addressed in Appendix C.
4. FTS Student Instructors are not allowed to lay out, conduct or evaluate the field exercises and the practical field tests unless they have met the guidelines under Appendix D.
5. FTS Student Instructors must be approved for each lecture or field exercises in which the FTS Instructor assists or instructs from the FTS Course Coordinator and/or the Adjunct Instructor of that FTS Course.
6. FTS student instructors operate under the supervision and report to the FTS Course Coordinator.
7. If a FTS Adjunct Instructor is conducting the FTS class, the FTS Student Instructor will be under his/her direct supervision.
8. FTS Student Instructors may not change, reprint, or publish, nor give permission to change, reprint or publish any of the written material, either in part or in whole, of any Guidebook, Workbook, Manual or Book for the VDEM Field Team Signcutter Course without the written permission of VDEM

APPENDIX F – VDEM RULES & REGULATIONS

If at such time VDEM either changes their requirements for Search and Rescue or the Field Team Signcutter Course or at such time the United States Department of Homeland Security or the Federal Emergency Management Agency requires any changes, those changes will supersede these standards and will replace such items addressed in these standards.

Such changes will be given in writing to the VDEM SAR Coordinator, the VDEM Chief Instructor, the VDEM FTS Coordinator, Adjunct Instructors, Student Instructors, approved Field Tracking Committee Members and other need-to-know personnel.

These changes will be posted upon the VDEM SAR Web Site and an addendum will be placed at the end of the FTS Standards.

If any changes reflect a change in the Knowledge Expectations of the FTS Standards, the changes will be presented to the VASARCO President and the VASARCO Tracking Standards Committee for review, approval and recommendation. For continuing continuity the VASARCO Tracking Committee Chair should maintain that position until that person resigns or is replaced.

Each FTS student will receive a copy of the current VDEM FTS Standards at the start of their FTS class.

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