SURVIVAL MANUAL

SUMMER 2002

UNITED STATES MARINE CORPS
Mountain Warfare Training Center
Bridgeport, CA. 93517-5001

SUMMER SURVIVAL COURSE HANDBOOK

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MSVX.02.01
02/06/05

STUDENT HANDOUT

REQUIREMENTS FOR SURVIVAL

TERMINAL LEARNING OBJECTIVE In a survival situation, and given a survival kit, apply the requirements for survival, in accordance with the references. **(MSVX.02.01)**

ENABLING LEARNING OBJECTIVES

(1) Without the aid of references and given the acronym "SURVIVAL", describe in writing the acronym "SURVIVAL", in accordance with the references. **(MSVX.02.01a)**

(2) Without the aid of references, list in writing the survival stressors, in accordance with the references. **(MSVX.02.01b)**

(3) Without the aid of references, list in writing the priorities of work in a survival situation, in accordance with the references. **(MSVX.02.01c)**

(4) Without the aid of references, conduct the priorities of work in a survival situation, in accordance with the references. **(MSVX.02.01d)**

OUTLINE

1. REQUIREMENTS FOR SURVIVAL

a. This positive mental "mind-set" is important in many ways. We usually call it the "will to survive" although you might call it "attitude" as well. This basically means that, if you do not have the right attitude, you may not survive.

b. A guideline that can assist you is the acronym " SURVIVAL". **(MSVX.02.01a)**

(1) Size up.

(a) Size up the situation.

1. Conceal yourself from the enemy.

2. Maintain your wits and use your senses to determine what is happening in your immediate area of influence before making a survival plan.

(b) Size up your surroundings.

1. Determine the rhythm or pattern of the area.

2. Note animal and bird noises and their movement.

3. Note enemy traffic and civilian movement.

(c) Size up your physical condition.

1. Check your wounds and give yourself first aid.

2. Take care to prevent further bodily harm.

3. Evaluate your condition and the condition of your unit prior to developing a plan.

(d) Size up your equipment.

1. Consider how available equipment may affect survival senses; tailor accordingly.

(2) **U**ndue haste makes waste.

(a) Plan your moves so that you can move out quickly without endangering yourself if the enemy is near.

(3) **R**emember where you are.

(a) If you have a map, spot your location and relate it to the surrounding terrain.

(b) Pay close attention to where you are and where you are going. **Constantly orient yourself**.

(c) Try to determine, at a minimum, how your location relates to the following:

1. The location of enemy units and controlled areas.

2. The location of friendly units and controlled areas.

3. The location of local water sources.

4. Areas that will provide good cover and concealment.

(4) **V**anquish fear and panic.

(a) The feeling of fear and panic will be present. The survivor must control these feelings.

(5) **I**mprovise and Improve.

(a) Use tools designed for one purpose for other applications.

(b) Use objects around you for different needs. (i.e. use a rock for a hammer)

(6) **V**alue living.

(a) Place a high value on living.

(b) Refuse to give into the problem and obstacles that face you.

(c) Draw strength from individuals that rise to the occasion.

(7) **A**ct like the natives.

(a) Observe the people in the area to determine their daily eating, sleeping, and drinking routines.

(b) Observe animal life in the area to help you find sources of food and water.

NOTES: Remember that animal reactions can reveal your presence to the enemy. Animals cannot serve as an absolute guide to what you can eat and drink.

(8) **L**ive by your wits, **but for now**, learn basic skills.

(a) Practice basic survival skills during all training programs and exercises.

2. **STRESS**. Stress has many positive benefits. Stress provides us with challenges: it gives us chances to learn about our values and strengths. Too much stress leads to distress. While many of these signs may not be self-identified, it remains critical that all survivors remain attentive to each other's signs of distress. Listed are a few common signs of distress found when faced with too much stress:

a. Difficulty in making decisions. (Do not confuse this sign for a symptom of hypothermia).

b. Angry outbursts.

c. Forgetfulness.

d. Low energy level.

e. Constant worrying.

f. Propensity for mistakes.

g. Thoughts about death or suicide.

h. Trouble getting along with others.

i. Withdrawing from others.

j. Hiding from responsibilities.

k. Carelessness.

3. **SURVIVAL STRESSORS**. **(MSVX.02.01b).** Any event can lead to stress. Often, stressful events occur simultaneously. These events are not stress, but they produce it and are called "stressors". In response to a stressor, the body prepares to either "fight or flight". Stressors add up. Anticipating stressors and developing strategies to cope with them are the two ingredients in the effective management of stress. It is essential that the survivor be aware of the types of stressors they will encounter.

   a. Injury, Illness, or Death. Injury, illness, and death are real possibilities a survivor may face. Perhaps nothing is more stressful than being alone in an unfamiliar environment where you could die from hostile action, an accident, or from eating something lethal.

   b. Uncertainty and Lack of Control. Some people have trouble operating in settings where everything is not clear-cut. This uncertainty and lack of control also add to the stress of being ill, injured or killed.

   c. Environment. A survivor will have to contend with the stressors of weather, terrain and the types of creatures inhabiting an area. Environmental and climactic changes, coupled with insects and animals, are just a few of the challenges awaiting the Marine working to survive.

   d. Hunger and Thirst. Without food and water a person will weaken and eventually die. Getting and preserving food and water take on increasing importance as the length of time in a survival situation increases. With the likelihood of diarrhea, replenishing electrolytes becomes critical. For a Marine used to having his provisions issued, foraging can be a significant source of stress.

e. Fatigue. It is essential that survivors employ all available means to preserve mental and physical strength. While food, water and other energy builders may be in short supply, maximizing sleep to avoid deprivation is a very controllable factor. Further, sleep deprivation directly correlates with increased fear.

f. Isolation. Being in contact with others provides a greater sense of security and a feeling someone is available to help if problems occur.

4. **NATURAL REACTIONS**. Man has been able to survive many changes in his environment throughout the centuries. His ability to adapt physically and mentally to a changing world keeps him alive. The average person will have some psychological reactions in a survival situation. These are some of the major internal reactions you might experience within a survival situation:

a. Fear. Fear is our emotional response to dangerous situations that we believe have the potential to cause death, injury or illness. Fear can have a positive effect if it forces us to be cautious in situations where recklessness could result in injury.

b. Anxiety. Anxiety is an uneasy, apprehensive feeling we get when faced with dangerous situations. A survivor reduces his anxiety by performing those tasks that will ensure his coming through the ordeal alive.

c. Anger and Frustration. Frustration arises when a person is continually thwarted in his attempts to reach a goal. One result of frustration is anger. Getting lost, damaging or forgetting equipment, weather, inhospitable terrain, enemy patrols and physical limitations are just a few sources of frustration and anger. Frustration and anger encourage impulsive reactions, irrational behavior, poorly thought-out decisions, and in some instances, an "I quit" attitude.

d. Depression. Depression is closely linked with frustration and anger when faced with the privations of survival. A destructive cycle between anger and frustration continues until the person becomes worn down-physically, emotionally and mentally. At this point, he starts to give up, and his focus shifts from "What can I do" to "There is nothing I can do."

e. Loneliness and Boredom. Man is a social animal and enjoys the company of others. Loneliness and boredom can be another source of depression. Marines must find ways to keep their minds productively occupied.

f. Guilt. The circumstances leading to your survival situation are sometimes dramatic and tragic. It may be the result of an accident or military action where there was a loss of life. Perhaps you were the only, or one of a few, survivors. While naturally relieved to be alive, you simultaneously may be mourning the deaths of others who were less fortunate. Do not let feelings of guilt prevent you from living.

5. **PRIORITIES OF WORK IN A SURVIVAL SITUATION. (MSVX.02.02c).** Each survival situation will have unique aspects that alter the order in which tasks need to be accomplished. A general guideline is to think in blocks of time.

   a. First 24 hours. The first 24 hours are critical in a survival situation. You must make an initial estimate of the situation. Enemy, weather, terrain, time of day and available resources will determine which tasks need to be accomplished first. They should be the following:

      (1) Shelter.

      (2) Fire.

      (3) Water.

      (4) Signaling.

   b. Second 24 hours. After the first 24 hours have passed, you will now know if you can survive. This time period needs to be spent on expanding your knowledge of the area. By completing the following tasks, you will be able to gain valuable knowledge.

      (1) Tools and weapons. By traveling a short distance from your shelter to locate the necessary resources, you will notice edible food sources and game trails.

      (2) Traps and snares. Moving further away from your shelter to employ traps and snares, you will be able to locate your shelter area from various vantage points. This will enable you to identify likely avenues of approach into your shelter area.

      (3) Pathguards. Knowing the likely avenues of approaches, you can effectively place noise and casualty producing pathguards to ensure the security of your shelter area.

   c. Remainder of your survival situation. This time is spent on continuously improving your survival situation until your rescue.

6. **GROUP SURVIVAL.** Group survival depends largely on the ability to organize activity. An emergency situation does not bring people together for a common goal initially; rather, the more difficult and confusing the situation, the greater are the group's problems.

   a. Groups Morale. High morale must come from internal cohesiveness and not merely through external pressure. The moods and attitudes can become wildly contagious.

Conscious, well-planned organization and leadership on the basis of delegated or shared responsibility often can prevent panic. High group morale has many advantages.

(1) An individual feels strengthened and protected since he realizes that his survival may depend on others whom he trusts.

(2) The group can meet failure with greater persistency.

(3) The group can formulate goals to help each other face the future.

b. Factors that Influence Group Survival. There are numerous factors that will influence whether a group can successfully survive.

(1) Organization of Manpower - Organized action is important to keep all members of the group informed; this way the members of the group will know what to do and when to do it, both under ordinary circumstances and in emergencies.

(2) Selective Use of Personnel - In well-organized groups, the person often does the job that most closely fits his personal qualifications.

(3) Acceptance of Suggestion and Criticisms - The senior man must accept responsibility for the final decision, but must be able to take suggestion and criticisms from others.

(4) Consideration of Time - On-the-spot decisions that must be acted upon immediately usually determine survival success.

(5) Check Equipment - Failure to check equipment can result in failure to survive.

(6) Survival Knowledge and Skills - Confidence in one's ability is increased by acquiring survival knowledge and skills.

REFERENCE:

1. FM 21-76, Survival, 1992.

2. MCRP 3-02h, Survival, Escape, and Evasion, 1999.

3. B-GA-217-001/PT-001, Down but not out, Canadian Survival Guide.

4. AFM 64-5, Search and Rescue Survival,1969.

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STUDENT HANDOUT

SURVIVAL KIT

TERMINAL LEARNING OBJECTIVE Without the aid of references, and given an area of operations, construct a personal survival kit, in accordance with the references. **(MSVX.02.02)**

ENABLING LEARNING OBJECTIVES

(1) Without the aid of references, list in writing the components for a survival kit, in accordance with the references. **(MSVX.02.02a)**

(2) Without the aid of references, list in writing one example of each component for a survival kit, in accordance with the references. **(MSVX.02.02b)**

OUTLINE

1. COMPONENTS FOR A SURVIVAL KIT

a. The environment is the key to the types of items you will need in your survival kit. How much equipment you put in your kit depends on how you will carry the kit. A kit on your body will have to be much smaller than one carried in a vehicle.

b. Always layer your survival kit, keeping the most important items on your body.

c. In preparing your survival kit, select items that can be used for more than one purpose.

d. Your survival kit does not need to be elaborate. You only need functional items that will meet your needs and a case to hold them. The case might be a first aid case, an ammunition pouch, or another suitable case. This case should be-

(1) Water repellent or waterproof.

(2) Easy to carry or attach to your body.

(3) Suitable to accept various sized items.

(4) Durable.

e. When constructing a survival kit, you should have the following components: **(MSVX.02.02a)**

(1) Fire starting items.

(2) Water procurement items.

(3) Food procurement items.

(4) Signaling items.

(5) First aid items.

(6) Shelter items.

2. **ITEMS CONTAINED WITHIN EACH COMPONENT** **(MSV.02.02b*)***

a. Fire Starting Items.

(1) Matches.

(2) Magnifying glass.

(3) Flint and Steel.

(4) Lighter.

(5) Potassium Permanganate, with a container of sugar or anti-freeze.

(6) Prepackaged Tinder.
-Commercially Manufactured
-Cotton Balls and Petroleum Jelly

b. Water Procurement Items

(1) Water Disinfecting Chemicals.
-Iodine Tablets
-Betadine Solution
-Iodine Solution

(2) Metal Container. (Serves for boiling water)
-Canteen Cup
-Survival Kit Container
-Any Suitable can that contained no petroleum products.

(3) Water Carrying Items.
- Canteen
- Plastic Bag
- Plastic/Metal/Glass Container which contained no petroleum products.

c. <u>Food Procurement Items</u>

(1) Fish.
- Various sized hooks
- Various sized sinkers/weights
- Metal leaders and swivels
- Small weighted jigs
- Fishing line
- Think about the size of fish for that environment when selecting weights and sizes.

(2) Game.
- Snares
  - *Commercially Manufactured
  - *Aircraft Cable
  - *Tie Wire
- Bait
  - *MRE Cheese Spread or Peanut Butter Package
- 550 Cord for Gill Net and Trap Construction
- Engineer/Marking Tape
- Sling shot rubber and pouch

d. <u>Signaling Items</u>

(1) Day.
- Mirror
- Whistle
- Pyrotechnics (Smoke, Pen Flares)
- Air Panels

(2) Night.
- Pyrotechnics (Pen Flares, Star Clusters)
- Lights (Flashlight, Strobe, Chemlight)
- Whistle

e. <u>Shelter Items</u>

(1) Cordage.
- 550 Cord.
- Wire.
- Communication wire
- Tie wire

(2) Finger Saw.

(3) Sewing Kit with Needles for construction/repair of clothing.

(4) Tentage.
-poncho
-tarp
-space blanket
-plastic trash bags

f. First Aid Items

(1) Band-Aids.
-Steristrips
-Adhesive Tape
-Non-stick pads, 4x4's, Gauze, Battle Dressings
-Muslin Bandage

(2) Ointments.
-Burn
-Anti-septic

(3) Miscellaneous.
-Salt
-Sugar
-Eye Wash
-Alcohol prep pads
-Suture Kit
-Scalpel
-Vile of Yarrow

g. Miscellaneous items.

(1) Fingernail clippers.

(2) Compass.

(3) Notebook with pen or pencil.

(4) Wood eye screws and nails.

(5) Surgical tubing.

Note: It is assumed that the Marine is always carrying a high quality fixed bladed knife, a multi-tool knife, and a sharpening stone.

REFERENCE:

1. FM 21-76, Survival, 1992.

2. Barry Davies BME, SAS Escape Evasion and Survival Manual, 1996.

3. John Wiesman, SAS Survival Guide, 1986.

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MSVX.02.03
2/6/05

STUDENT HANDOUT

WATER PROCUREMENT

TERMINAL LEARNING OBJECTIVE In a survival situation, and given a survival kit, and water procurement materials, obtain potable water, in accordance with the references. **(MSVX.02.03)**

ENABLING LEARNING OBJECTIVES

(1) Without the aid of references, list in writing the types of incidental water, in accordance with the references. **(MSVX.02.03a)**

(2) Without the aid of references, list in writing the hazardous fluids to avoid substituting for potable water, in accordance with the references. **(MSVX.02.03b)**

(3) Without the aid of references, list in writing the methods for disinfecting water, in accordance with the references. **(MSVX.02.03c)**

(4) Without the aid of references and given a military bottle of water purification tablets, state in writing its self-life, in accordance with the references. **(MSVX.02.03d)**

(5) Without the aid of references, and given the water temperature and chemical concentration, state in writing the contact time, in accordance with the references. **(MSVX.02.03e)**

(6) Without the aid of references, construct a solar still , in accordance with the references. **(MSVX.02.03f)**

OUTLINE

1. WATER INTAKE

a. Thirst is not a strong enough sensation to determine how much water you need.

b. The best plan is to drink, utilizing the OVER DRINK method. Drink plenty of water anytime it is available and particularly when eating.

c. Dehydration is a major threat. A loss of only 5 % of your body fluids causes thirst, irritability, nausea, and weakness; a 10% loss causes dizziness, headache, inability to walk, and a tingling sensation in limbs; a 15% loss causes dim vision, painful urination, swollen tongue, deafness, and a feeling of numbness in the skin; also a loss of more than 15% body fluids could result in death.

d. Your water requirements will be increased if:

(1) You have a fever.

(2) You are experiencing fear or anxiety.

(3) You evaporate more body fluid than necessary. (i.e., not using the proper shelter to your advantage)

(4) You have improper clothing.

(5) You ration water.

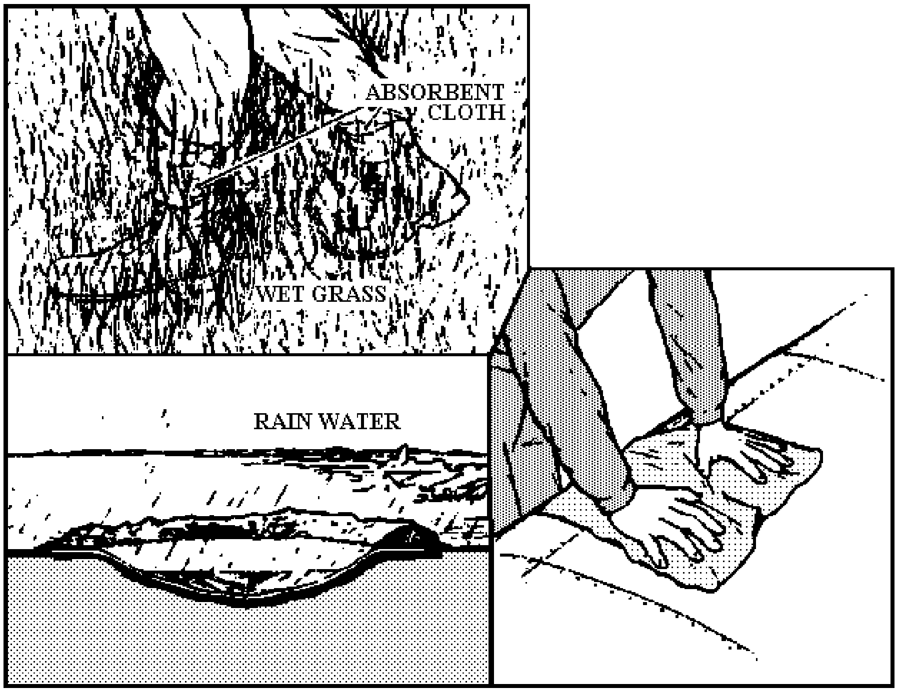
(6) You overwork.

2. **INCIDENTAL WATER**. **(MSVX.02.03a)**

a. During movement, you may have to ration water until you reach a reliable water source. Incidental water may sometimes provide opportunities to acquire water. Although not a reliable or replenished source, it may serve to stretch your water supply or keep you going in an emergency. The following are sources for incidental water:

(1) Dew. In areas with moderate to heavy dew, dew can be collected by tying rags or tuffs of fine grass around your ankles. While walking through dewy grass before sunrise, the rags or grass will saturate and can be rung out into a container. The rags or grass can be replaced and the process is repeated.

(2) Rainfall. Rainwater collected directly in clean container or in plants that contain no harmful toxins is generally safe to drink without disinfecting. The survivor should always be prepared to collect rainfall at a moments notice. An inverted poncho works well to collect rainfall.



3. **HAZARDOUS FLUIDS** **(MSVX.02.03b*)***

   a. Survivors have occasionally attempted to augment their water supply with other fluids, such as alcoholic beverages, urine, blood, or seawater. While it is true that each of these fluids has a high water content, the impurities they contain may require the body to expend more fluid to purify them. Some hazardous fluids are:

      (1) Sea water. Sea water in more than minimal quantities is actually toxic. The concentration of sodium and magnesium salts is so high that fluid must be drawn from the body to eliminate the salts and eventually the kidneys cease to function.

      (2) Alcohol. Alcohol dehydrates the body and clouds judgment. Super-cooled liquid, if ingested, can cause immediate frostbite of the throat, and potential death.

      (3) Blood. Blood, besides being salty, is a food. Drinking it will require the body to expend additional fluid to digest it.

      (4) Urine. Drinking urine is not only foolish, but also dangerous. Urine is nothing more than the body's waste. Drinking it only places this waste back into the body, which requires more fluid to process it again.

4. **WATER QUALITY**. Water contains minerals, toxins, and pathogens. Some of these, consumed in large enough quantities may be harmful to human health. Pathogens are our primary concern. Pathogens are divided into Virus, Cysts, Bacteria, and Parasites. Certain

pathogens are more resistant to chemicals and small enough to move through microscopic holes in equipment (i.e., T-shirt, parachute). Certain pathogens also have the ability to survive in extremely cold water temperatures. Pathogens generally do not live in snow and ice. Water quality is divided into three levels of safety with disinfection as the most desired level, then purified, followed by potable.

a. Disinfection. Water disinfection removes or destroys harmful microorganisms. Giardia cysts are an ever-present danger in clear appearing mountain water throughout the world. By drinking non-potable water you may contract diseases or swallow organisms that could harm you. Examples of such diseases or organisms are: Dysentery, Cholera, Typhoid, Flukes, and Leeches.

b. Remember, impure water, no matter how overpowering the thirst, is one of the worst hazards in a survival situation.

c. The first step in disinfecting is to select a treatment method. The two methods we will discuss are as follows: **(MSVX.02.03c)**

(1) Heat. The Manual of Naval Preventive Medicine (P-5010) states that you must bring the water to a rolling boil before it is considered safe for human consumption. This is the most preferred method.

(a) Bringing water to the boiling point will kill 99.9% of all Giardia cysts. The Giardia cyst dies at 60^{O}C and Cryptosporidium dies at 65C. Water will boil at 14,000' at 86^{O}C and at 10,000' at 90C. With this in mind you should note that altitude does not make a difference unless you are extremely high.

(2) Chemicals. There are numerous types of chemicals that can disinfect water. Below are a few of the most common. In a survival situation, you will use whatever you have available.

(a) Iodine Tablets.

(b) Chlorine Bleach.

(c) Iodine Solution.

(d) Betadine Solution.

(e) Military water purification tablets. **(MSVX.02.03d)** These tablets are standard issue for all DOD agencies. These tablets have a shelf-life of four years from the date of manufacture, unless opened. Once the seal is broken, they have a shelf-life of one year, not to exceed the initial expiration date of four years.

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(3) Water Disinfection Techniques and Halogen Doses.

Iodination techniques Added to 1 liter or quart of water	Amount for 4 ppm	Amount for 8 ppm
Iodine tablets Tetraglcine hydroperiodide EDWGT Potable Aqua Globaline	½ tablet	1 tablet
2% iodine solution (tincture)	0.2 ml 5 gtts	0.4 ml 10 gtts
10% povidone-iodine solution*	0.35 ml 8 gtts	0.70 ml 16 gtts
Chlorination techniques	Amount for 5 ppm	Amount for 10 ppm
Household bleach 5% Sodium hypochlorie	0.1 Ml 2 gtts	0.2 ml 4 gtts
AquaClear Sodium dichloroisocyanurate		1 tablet
AquaCure, AquaPure, Chlor-floc Chlorine plus flocculating agent		8 ppm 1 tablet

*Providone-iodine solutions release free iodine in levels adequate for disinfection, but scant data is available.

Measure with dropper (1 drop=0.05 ml) or tuberculin syringe

Ppm-part per million gtts-drops ml-milliliter

Concentration of Contact time in minutes at various water temperatures (WSVX.02.03e) halogen

	5 C / 40 F	15 C / 60 F	30 C / 85 F
2 ppm	240	180	60
4 ppm	180	50	45
8 ppm	60	30	15

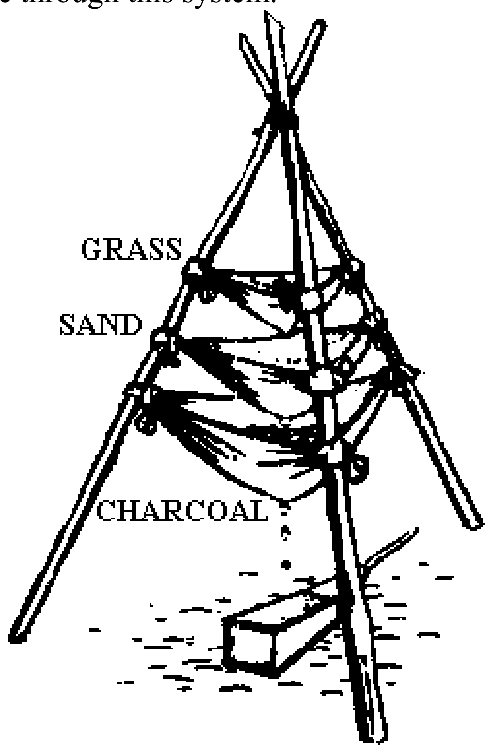
Note: These contact times have been extended from the usual recommendations to account for recent data that prolonged contact time is needed in very cold water to kill *Giardia* cysts.

Note: chemicals may not destroy Cryptosporidium.

d. Purification. Water purification is the removal of organic and inorganic chemicals and particulate matter, including radioactive particles. While purification can eliminate offensive color, taste, and odor, it may not remove or kill microorganisms.

(1) Filtration. Filtration purifying is a process by which commercial manufacturers build water filters. The water filter is a three tier system. The first layer, or grass layer, removes the larger impurities. The second layer, or sand layer, removes the smaller impurities. The final layer, or charcoal layer (**not the ash but charcoal from a fire**), bonds and holds the toxins. All layers are placed on some type of straining device and the charcoal layer should be at least 5-6 inches thick. Layers should be changed frequently and straining material should be boiled. Remember, this is not a disinfecting method, cysts can possibly move through this system.

WATER FILTER



(2) Commercial Water Filters. Commercial water filters are generally available in most retail stores and may be with you. Understanding what the filter can do is the first step in safeguarding against future illnesses.

(a) A filter that has a .3 micron opening or larger will not stop Cryptosporidium.

(b) A filter system that does not release a chemical (i.e., iodine) may not kill all pathogens.

(c) A filter that has been overused may be clogged. Usage may result in excessive pumping pressure that can move harmful pathogens through the opening.

e. Potable. Potable indicates only that a water source, on average over a period of time, contains a "minimal microbial hazard," so the statistical likelihood of illness is acceptable.

(1) Sedimentation. Sedimentation is the separation of suspended particles large enough to settle rapidly by gravity. The time required depends on the size of the particle. Generally, 1 hour is adequate if the water is allowed to sit without agitation. After sediment has formed on the bottom of the container, the clear water is decanted or filtered from the top. Microorganisms, especially cysts, eventually settle, but this takes longer and the organisms are easily disturbed during pouring or filtering. Sedimentation should not be considered a means of disinfection and should be used only as a last resort or in an extreme tactical situation.

5. **SOLAR STILLS. (MSVX.2.3f)**

a. Solar stills are designed to supplement water reserves. Contrary to belief, they will not provide enough water to meet the daily requirement for water.

b. Above-Ground Solar Still. This device allows the survivor to make water from vegetation. To make the aboveground solar still, locate a sunny slope on which to place the still, a clear plastic bag, green leafy vegetation, and a small rock.

(1) Construction.

(a) Fill the bag with air by turning the opening into the breeze or by "scooping" air into the bag.

(b) Fill the bag half to three-quarters full of green leafy vegetation. Be sure to remove all hard sticks or sharp spines that might puncture the bag.

CAUTION
Do not use poisonous vegetation. It will provide poisonous liquid.

(c) Place a small rock or similar item in the bag.

(d) Close the bag and tie the mouth securely as close to the end of the bag as possible to keep the maximum amount of air space. If you have a small piece of tubing, small straw, or hollow reed, insert one end in the mouth of the bag before tying it securely. Tie off or plug the tubing so that air will not escape. This tubing will allow you to drain out condensed water without untying the bag.

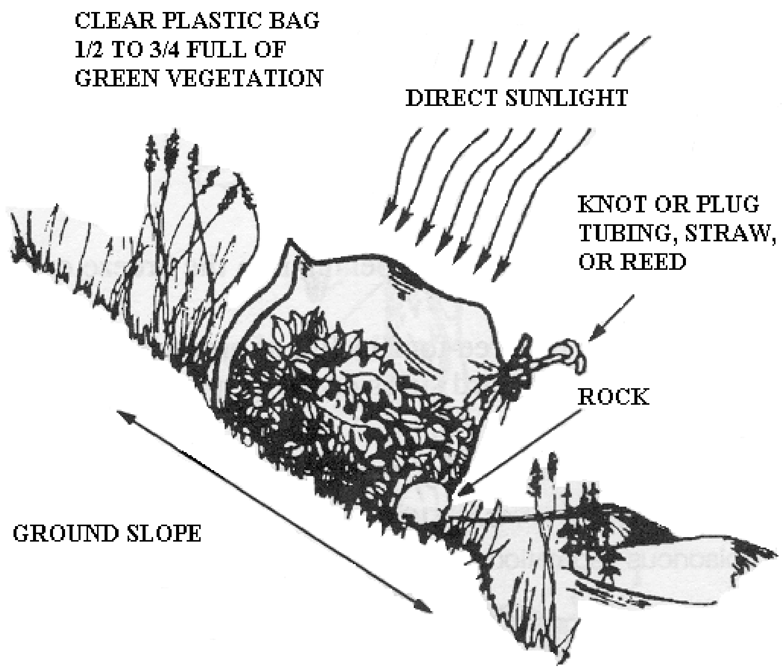
(e) Place the bag, mouth downhill, on a slope in full sunlight. Position the mouth of the bag slightly higher than the low point in the bag.

(f) Settle the bag in place so that the rock works itself into the low point in the bag.

(g) To get the condensed water from the still, loosen the tie and tip the bag so that the collected water will drain out. Retie the mouth and reposition the still to allow further condensation.

(h) Change vegetation in the bag after extracting most of the water from it.

(i) Using 1 gallon zip-loc bag instead of trash bags is a more efficient means of construction.



<u>ABOVE GROUND SOLAR STILL</u>

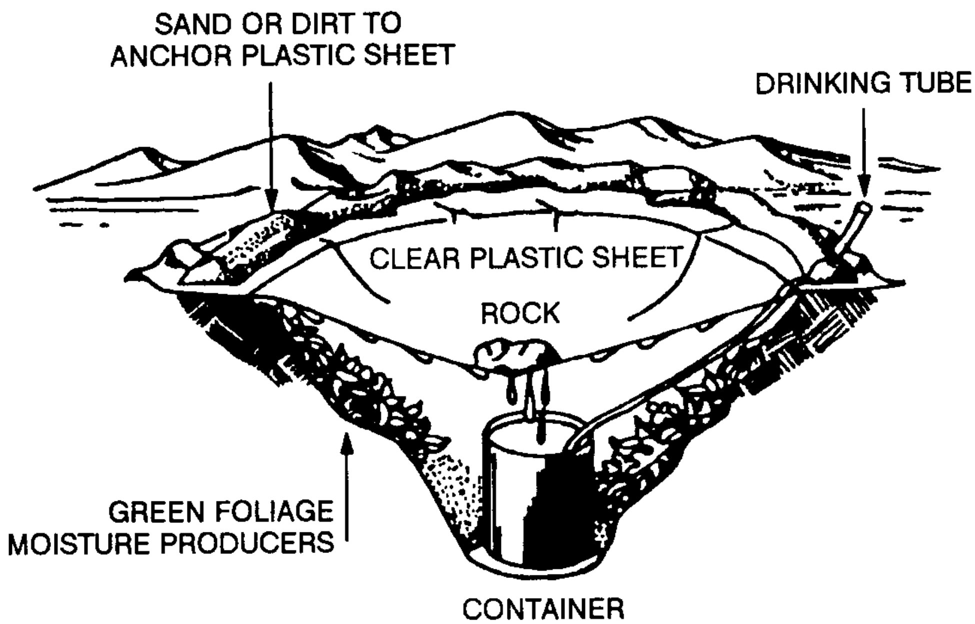
c. <u>Below-Ground Solar Still</u>. Materials consist of a digging stick, clear plastic sheet, container, rock, and a drinking tube.

(1) Construction.

(a) Select a site where you believe the soil will contain moisture (such as a dry streambed or a low spot where rainwater has collected). The soil should be easy to dig, and will be exposed to sunlight.

(b) Dig a bowl-shaped hole about 1 meter across and 24 inches deep.

(c) Dig a sump in the center of the hole. The sump depth and perimeter will depend on the size of the container you have to place in it. The bottom of the sump should allow the container to stand upright.



BELOW GROUND SOLAR STILL

(d) Anchor the tubing to the container's bottom by forming a loose overhand knot in the tubing. Extend the unanchored end of the tubing up, over, and beyond the lip of the hole.

(e) Place the plastic sheet over the hole, covering its edges with soil to hold in place. Place a rock in the center of the plastic sheet.

(f) Lower the plastic sheet into the hole until it is about 18 inches below ground level. Make sure the cone's apex is directly over the container. Ensure the plastic does not touch the sides of the hole because the earth will absorb the moisture.

(g) Put more soil on the edges of the plastic to hold it securely and prevent the loss of moisture.

(h) Plug the tube when not in use so that moisture will not evaporate.

(i) Plants can be placed in the hole as a moisture source. If so, dig out additional soil from the sides.

(j) If polluted water is the only moisture source, dig a small trough outside the hole about 10 inches from the still's lip. Dig the trough about 10 inches deep and 3 inches wide. Pour the polluted water in the trough. Ensure you do not spill any polluted water around the rim of the hole where the plastic touches the soil. The trough holds the polluted water and the soil filters it as the still draws it. This process works well when the only water source is salt water.

(k) Three stills will be needed to meet the individual daily water intake needs.

REFERENCE:

1. FM 21-76, Survival, 1992.

2. Paul Auerbach, Wilderness Medicine, 3rd Edition 1995.

ANIMAL HABITS

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TACTICAL CONSIDERATIONS

If the need arises to implement survival skills in a semi-permissive or non-permissive environment the Marine must be able to utilize basic skills, as referenced in the Marine Battle Skills Handbook Pvt – Lcpl, in order to avoid making contact with hostile personnel. Unfortunately, the enemy will not consider your **MOS** when deciding whether or not you should be **captured** or **killed**. It is imperative that every Marine live up to statement – **"every Marine is a basic rifleman."**

To discuss every possible survival scenario and enemy situation would be pointless. The following outline is to be utilized as a guide. Common sense and survival skills, along with these considerations, will increase your chances of avoiding capture or possible death.

A. Apply the key word survival (ICBT – 20.01) (PVTX.14.16)

1. **Size up the situation:**
   - **Mission**
     What was the mission?
     Can the mission still be accomplished?
   - **Enemy**
     What is the enemy situation?
   - **Troops and Fire Support available**
     Do you have communications with higher?
     Is anyone injured? How will they be transported?
     How will you communicate with other Marines in your group?
     Arm and Hand signals?
   - **Terrain and Weather**
     Do you have a map?
     Does the terrain offer cover and concealment?
     Where is the water?
     Do you have protection from the elements?
     Is it advantageous to move in current weather?
     Will you move in daytime or evening temperatures?
     How much illumination is available at night?
   - **Time, Space, and Logistics**
     Is it day or night?
     Time Distance Formula
     What kind of supplies and equipment are available?

2. **Undue haste makes waste:**
   - Should you stay or move from your current position.

- "Slow is Smooth – Smooth is Fast" i.e. Is there a need to run to the SAFE or should the requirements of survival be implemented in route? Security is paramount -is it being sacrificed for speed?

3. **Remember where you are:**
   - Are you in a non-permissive environment?
   - What is the terrain like?
   - Can you utilize land navigation skills?

4. **Vanquish fear and panic:**
   - Are good decisions being made?
   - Is the group completely lost and leaderless?
   - **BAMCIS**

5. **Improvise and improve:**
   - Do you have your survival kit?
   - Are litters available or do you have to improvise?
   - Do you have the resources to obtain food and water?
   - Will your supplies and equipment protect you from the elements?
   - Will your supplies and equipment protect you from the enemy?

6. **Value living:**
   - Do you want to lay on your back and put your legs in the air like a dead cockroach?

7. **Act like the natives:**
   - Observe native habits.

8. **Live by your wits, but for now learn basic skills:**
   - Utilize common sense and basic Marine Corps training.
   - Practice skills learned at MWTC.
   - **Prior planning prevents poor performance.**
   - Establish E and R plan, brief personnel of contingencies.

B. **Additional Individual Training Standards**:
- Employ signaling devices **(ICBT – 20.03)**
- Construct and maintain a fire **(ICBT – 20.04**)
  - What is the tactical situation?
- Prepare a survival kit **(ICBT 20.05) (PVTX.14.15**)
- Maintain the M16A2 service rifle. **(PVTX.11.1)**
- Prepare individual equipment for tactical operations. **(PVTX.14.1)**
- Camouflage self and individual equipment. **(PVTX.14.7)**
- Transport casualties using manual carries and improvised stretchers. **(PVTX.17.4)**
- Maintain physical fitness. **(PVTX.20.1)**
- Perform individual movement. **(PVTX.14.2)**
- Participate in a security patrol. **(PVTX.13.1)**

        - Arm and hand signals.
        - Challenge and pass / near and far recognition.
        - Rally points.
        - Actions on enemy contact
    - Security halts.
    - Reconnaissance of objectives.
    - 5 Point Contingency Plan. (GOTWA)
        - Going (where)
        - Others (who is going with you)
        - Time away.
        - What happens (you and them)
        - Actions taken on enemy contact (you and them)
- React to enemy indirect fire. **(PVTX.14.3)**
- React to enemy direct fire. **(PVTX.20.1)**

C. Additional Considerations:

When sizing up the situation you will determine whether the Mission or Cmdr's Intent can be accomplished. Obviously, every effort must be made to accomplish the mission. If it can not be accomplished a separate mission order must be established for the group. (i.e. At 0900 the group will implement the requirements for survival in order to move to the SAFE for recovery.)

In order to tactically move and occupy the SAFE, the group must be task organized into teams. The teams are assigned additional tasks. Team tasks will usually be accomplished during occupation of the patrol base. In addition, individuals within the group are assigned tasks.

1. Teams:
- Security. All patrol members should be assigned sectors of fire to include air sentry.
- Reconnaissance.
- Assault. (may not be implemented)
- Support. (may not be implemented)

2. Team Tasks:
- Water procurement.
- Food gathering.
- Wood gathering. (construction materials, signal, and fire wood.)
- Shelter construction.
- Pathguards.
- Signaling

3. Individual Tasks:
- Point man.
- Navigator.
- Patrol leader and assistant.

- Flank (left and right) security.
- Two pace men.
- Tail end charlie.

In a survival situation it is probably wiser to occupy the patrol base through reconnaissance instead of by force. Upon initial occupation the acronym SAFE (Security, Automatic weapons, Fields of fire, Entrenchment) must be enforced. The patrol base should only be entered (or exited) from one location. Communication within the group is essential. Everyone must be well informed. (i.e. current plans, alternate patrol bases or rally points, how many Marines have departed the patrol base and when are they expected to return, current challenge and pass, and near and far recognition signals.) No Marine will exercise their judgement and leave the patrol base or perform a task without permission from the patrol leader.

The patrol base is not a place for lollygagging. It is a place where noise and light discipline is enforced and security is maintained continuously. Priorities of work will be established after occupation. (i.e. weapon maintenance, hygiene, chow, and rest plans) Security or reconnaissance teams can be sent out to determine enemy threat or gather information for route selection. These patrols can also be tasked with gathering firewood or some other routine task. However, security must be maintained while the firewood is being collected.

Since you are probably evading the enemy, activity in and around the patrol base must be limited. Occupation of the patrol base must not exceed 24 hours. Depending on the tactical situation the use of fire may or may not be appropriate.

D. Conclusion:

The above information servers as a guideline. Survival is a thinking person's challenge between life and death. As the situation changes a Marine must adapt, size up the situation, and implement a new plan in order to survive. If you are lacking in any of the Individual Training Standards it is your responsible to take corrective action. **Remember that every Marine is a basic rifleman.**

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WINTER MOUNTAIN SURVIVAL COURSE

PERFORMANCE EVALUATION RECAP SHEET

1. The student must satisfactorily achieve an 80% or higher grade on either the written test or the written retest.

2. The student must satisfactorily master 10 out of the 12 performance evaluation tasks.

3. A breach of integrity, conduct unbecoming of a student or the inability to abide by Survival course guidelines, will result in the immediate dismissal from the Mountain Survival Course.

4. All of the above must be accomplished prior to successful graduation from the Mountain Survival Course.

5. Failure to accomplish any one these will result in a Proficiency Board, which may result in dismissal from the course.

6. There will be no talking to any student during isolation unless an emergency. No student will come with in 50 meters of another student.

PERFORMANCE TASK	M--N/M	REMARKS

All criteria listed below each task, must be accomplished in order to master those tasks.

1. SURVIVAL KIT (MSV.2.2) M / NM
   Fire starting items
   Water procurement items
   Food procurement items
   Signaling items
   First Aid items
   Shelter items

2. SURVIVAL NAVIGATION (MSV.2.7) M / NM
   Can find cardinal directions
   Prepares and maintains a log book
   Uses steering marks
   Appropriate place

3. BOW & DRILL (MSV.2.13a) M / NM
   Bow
   Drill
   Socket
   Fire Board
   Ember Patch
   Birds Nest
   Kindling
   Fuel Wood

4. SURVIVAL SHELTERS (MSV.2.4) M / NM
   Protection from the elements
   Heat retention
   Ventilation
   Drying facility
   Free from hazards
   Shelter stable

5. REQUIREMENTS FOR SURVIVAL (MSV.2.1) M / NM
   1st 24Hrs.
   Shelter
   Fire
   Water
   Signaling

   2nd 24Hrs.
   Tools & Weapons
   Traps & Snares
   Path guards

6. IMPROVISED SIGNAL DEVICE (MSVX.2.6) M / NM
   Smoke Generator
   Appropriate Size
   Tinder
   Kindling
   Placement
   Aflame within 90 seconds

7. PLANTS & INSECTS (WSVX) M / NM
   Located 1/2 canteen cup of edible plant
   1/2 canteen cup of prepared charcoal available
   Consumed the prepared plant
   Continue to live off the land
   Consume a prepared insect

8. TOOLS & WEAPONS (MSV.2.11) M / NM

Bowl

Wood split
Bark stripped
Coal burned
4inch deep, 4 inch diameter
Does not leak

Simple Club

Hardwood used
Bark stripped
Fire hardened (if required)
Club functional
Rounded ends

9. TOOL OR WEAPON (MSV.2.11) M / NM

Hardwood used
Bark stripped
Fire hardened (if required)
Functional able
One of the three following will be made: Ice spud, Ice skimmer, Slingshot

10. FISH & GAME (MSV.2.10) M / NM

Dress and/or skin game
Prepared game for consumption
Consumed game
Hide fleshed, brained, and smoked
Hide sewn and suitable for intended uses

11. TRAPS & SNARES (MSV.2.9) M / NM

Employment tech. appropriate for intended animal

a. Location
b. Presentation
c. Construction

Loop size and ground clearance correct
Bait used
Split stick if required

12. PATHGUARD (MSV.2.9) M / NM

Likely avenue of approach
Produces noise
Concealed
Appropriate tactical distance from the shelter