APPENDIX B - SURVIVAL

SURVIVAL

The following is a guide to survival for a 24-48 hour period. If for any reason an individual or small group is isolated from your support system, this information may aid in their safe return. It is not comprehensive, nor is it intended to be. There are many books on the subject of survival for further study.

Survival priorities are listed in descending order with attitude topping the list.

ATTITUDE

- The will to survive and a positive attitude are the most important attributes in survival. The key is not to panic when confronted with separation or isolation. Keep calm, assess the situation, and do something, anything to positively affect your survival outcome.

- Address only ONE survival problem at a time. If you were to look at everything at once, the task of surviving could seem overwhelming.

- Conserve strength, fluids, and heat. Prepare emergency signals, make shelter, inventory supplies, ration all food. Guard against infection and intestinal disorders. Do not travel in adverse weather; view the experience as a challenge.

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SHELTER

- Shelter is the most critical necessity in a survival situation. You can live for days without water, weeks without food, but only a few hours exposed to a harsh environment. You can build a good shelter without the aid of knife, blanket, or anything but your bare hands almost anywhere on the continent.

  - Protection from weather - Select a place away from wind, rain, snow, and glaring sun. Locate your shelter on the lee side of incoming weather systems.

  - Protection from natural hazards - Keep an eye open for avalanche slopes, overhanging deal limbs, trees that might blow down in the wind, or rock formations that could collapse. Either break them down or select a new location.

  - Dry, well drained area - Locate your shelter away from valleys, washes, troughs, and depressions.

  - Open, southern exposure - Do not build in thick woods. Preferably build at the edge of a clearing with a southern exposure where the sun provides the longest lasting heat and light.

  - Entryway facing east - Eastern exposure takes greater advantage of the warming rays of the sun.

  - Fire safety - Locate your shelter away from cooking or signaling fire.

  - Plant and animal hazards - Avoid everything from poison oak, to ant nests, to bear dens!

  - Abundance of materials - pick an area with plenty of resources.

  - Comfort - find an area free of sharp rocks or other debris.

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SHELTER (continued)

- Shelters are best built not too large. The main purpose of the shelter is to keep your body's internal fire burning with as little heat loss as possible. The smaller the shelter, the less energy it takes to keep it warm.

- Insulation between the ground and the body is essential for survival. Preventing heat from being conducted out of the body into the ground is important for anyone sitting or lying on the cold ground. Almost any light, dry, airy, soft debris laid out in a pile will do. Plastic sheeting can be used as a moisture barrier between the ground and the insulation.

- Any natural shelter will do to temporarily get you out of the weather. These are caves, rock outcroppings, or what ever you can squeeze into.

- The simplest shelter to build is the debris hut. Place one end of a large strong branch (ridgepole) on top of a tree stump, fallen log, or medium size rock. Prop other gathered branches along both sides of the ridgepole to create a wedge-shaped ribbing effect. The space created in-between should be large enough to accommodate your body, but steep enough to shed off moisture. Place finer sticks and brush crosswise to make a latticework that will keep junk from falling through the ribbing. Now heap on a pile of light, dry, airy, soft debris. To check thickness, work your arm through the debris to the ribbing. Debris should be to your armpit. In cold weather, add another foot or two of debris.

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OUTERWEAR

- Loose fitting clothing improves insulation, ventilation, and circulation. You can add insulation to clothing by stuffing them with dry grass or leaves. Sleeping in your clothes holds moisture and chills the body. You will not freeze to death in your sleep, the cold will awaken you.

- Layering the clothing is the best way to prepare for a variety of conditions. The three essential layers are underwear, insulation, and shell. Different combinations will enhance your comfort throughout changes in weather and exertion.

- The first layer is underwear. It should provide basic insulation and move moisture away from your skin, thus preventing chill when activity ceases.

- The second layer is insulation. These garments provide additional warmth. The weight of the material should be considered in relation to weather and activity.

- The third layer is the outer shell. This layer insulates against cold and protects against snow, wind, and rain. Shells can be wind and rain proof depending on need. Good fit is crucial. If you are wearing your shell in cold climates, allow room for your insulating clothing layers underneath. But if a parka is too big, heat loss can occur rapidly. Pay close attention to vents and closures, such as cuffs, hoods, and zippers. They should seal tight and open freely to allow you to adapt easily to changing conditions.

- Not all shells accomplish the same job. Coats made of Gore-Tex type material laminated to durable nylon are then treated for water repellency. The seams are sealed to make them waterproof. This type of shell is waterproof and allows your body to breath by wicking moisture away from your skin but retaining body heat.

- Remember to plan head to toe. Pants are just as important as a jacket for total warmth, and a hat is crucial for staying truly warm. Gloves, neck gaiters, balaclavas, hoods, and headbands further insulate you from the cold.

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WATER

You can survive 10 days with no water at 50 degrees Fahrenheit. However, you need 3 to 4 pints a day to maintain good health. Most of this can come from food sources. There are a variety of additional sources where water can be found. In the desert at 120 degrees Fahrenheit in the shade, expected survival without water is only 1 to 2 days.

- Rainwater — Collect all you can. Set up plastic sheeting at an angle to catch rain and funnel to bottle, bucket, or cup. Spread out a blanket and wring out. Set out cups, buckets, anything to catch what ever you can. Look for standing water in depressions of rocks, etc. Water can be collected from dew in a similar fashion.

- Snow/Ice — Eating raw snow can cause dehydration. It takes 50% less fuel to melt ice. Ice is preferable to snow. Snow can be melted by holding it in your hand or packed in a can over the fire.

- Tropics/Swamp — Standing water is usually unfit to drink and the streams are too muddy. Dig a hole 1 to 6 feet from the shore, let the water filter in, strain and purify.

- Ocean — Salt water kills 1 to 2 days faster than no water at all from dehydration. At the beach, dig a hole below the high tide line and use the first water seeping in - deeper water is salty.

- Arid Lands — Avoid water holes where green vegetation doesn't grow. It is probably poison. Look for water where green vegetation does grow and low places in the outside bend of dry creeks (dig hole, wait 2 hours), base of cliffs, hills, mountains, canyon heads, rocky plates, and low places between dunes. All cactus in the world is safe. Mash the core to extract the liquid. Small barrel cactus and yucca are the best. PURIFY all arid land water.

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WATER (Continued)

- Solar Still — Select an open, damp place. Dig a 3 foot deep hole. Place a cup or container capable of holding water in the center of the hole. Cover the hole with a 6 x 6 foot piece of plastic sheeting. Seal the edges of the plastic sheeting with rocks and dirt from the hole. Place a rock in the enter of the sheeting directly over the container. The sheeting should angle towards the container. Moisture from the ground is collected on the underside of the sheeting, runs toward the lowest point, and drops into the container. To help saturate the hole, add pieces of vegetation or urine. This method can collect about 1 quart in 2 hours. Make sure the container is large enough to collect all of the liquid. The water collected in this manner is safe to drink without any further purification.

- Purification — According to the Federal Center for Disease Control and Prevention in Atlanta, no surface water in the world is guaranteed free of the microscopic cysts responsible for parasitic condition call giardiasis (Giardia). It is not fatal in healthy adults, but it is an unpleasant and debilitating illness. Another parasite, crystosporidium, similar to giardia is highly resistant to chlorine.

  - Symptoms of Giardia are a sudden onset of explosive diarrhea, nausea, vomiting, lack of appetite, headache, and a low grade fever. These occur 7 to 10 days after ingestion of the parasite

- Purification of collected water is a matter of your survival. Treat all back country surface water - streams, lakes, and waterfalls. Headwaters of streams are not even safe. Even treat municipal drinking water in developing countries.

  - Boil — 20 minutes and let stand for 30 minutes and strain. Boiling with charcoal helps remove the bad taste. It kills bacteria and cysts, but does not affect toxic chemicals or pesticides.

  - Filter — good filtration systems remove harmful bacteria, cocci, protozoa, cysts, fungi, and parasites. They are small, light weight, and effective.

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FIRE

- Build fires away from grass, trees, and overhead snow. Clear duff to bare mineral soil. Start with tinder - shaved, dry twigs, leaves, or needles. Once going, stack small fuels. As fire increases place larger fuels on top.

- Build a small fire, sit close. To keep warmer, sit between fire and a reflective surface (eg: large rock). Sleep with your feet toward fire.

TRAVEL

- Your best bet is to stay put. If you or your group is reported missing, the search will begin at your last known location.
  - Travel in the snow uses 5 to 10 times more energy than staying put.
  - Travel in the desert during the day rapidly dehydrates your body. In the desert, stay in the shade during the day and only travel at night when temperatures are lower.
  - Travel in the tropics only during the day.

- Follow ridge line trails and streams. But stay out of the streams, too many critters!

- Dense aerial canopy deadens sound, limits light, blocks radio waves, and renders signaling useless.

- Build shelters above ground.

- Straight line travel is best. Travel downhill along watershed may triple the distance. The use of a compass will aid in this endeavor.

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ORIENTING

- By Watch — Hold the watch level and point the hour hand at the sun. South is midway between the hour hand and the number twelve in the smallest angle. South of the equator, read with face down and the midline will point North.

- By Shadow — Put a long stick in the ground. Mark the tip of the shadow and mark the tip of the shadow an hour later. A line from the first point to the second points East.

- By Stars — Stars rise in the East and fall in the West. If a star is rising is on your right, you are facing North.

SIGNALING

- Mirrors — Reflection is seen long distances. Signal even though you do not hear aircraft or vehicles, it may be spotted.

- Fires — In the daytime, make your fire very smoky. Use fuel oil, or wet fuels. In the nighttime, make your fire large and bright.

- Sound — Sound travels over great distance and further at night. Use whistles or other methods of making noise rather than yelling. Conserve as much energy as possible. Sound direction can be confusing as it seems to come from several directions when reflected off natural barriers.

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PHYSICAL CONSIDERATIONS

- HYPOTHERMIA — Individuals suffering from hypothermia will tend to lose consciousness. Awareness becomes clouded as body temperature approaches 90 degrees Fahrenheit and unconsciousness generally occurs at 86 degrees Fahrenheit. Pulse slows and becomes irregular. Skin is pale. Pupils are constricted and react poorly to light. Respiration is slow and labored. May appear intoxicated. Shivering becomes severe. Delay in treatment may cost a life.
  - Treatment consists of removing clothing, if wet, and replace with dry clothes. Warm rapidly, but do not burn or overheat. Victim should take nothing orally. Monitor respiration. Treat for shock. If available, administer intravenous fluids.

- HIGH ALTITUDE — The reduced amount of oxygen at high altitudes may have adverse effects on any pre-existing medical problems. Acute Mountain Sickness or AMS is a syndrome which can range from mild headache to incapacitating illness. Although it generally occurs when one sleeps at altitudes above 8,000 feet, it can develop some symptoms in some people at the 6,000 foot level. Symptoms are headache, nausea, insomnia, fatigue, lack of appetite, and light-headedness. Generally, symptoms will improve with rest and fluids over 24 to 48 hours.

- DEHYDRATION — Dehydration occurs more frequently in areas where the humidity is very low. Dehydration depletes energy, causes headaches and affects performance. The rule of thumb is to drink enough fluid to cause urination at least every three hours. Take frequent water or fluid breaks during vigorous activities.

- OTHER — Avoid exposure to the cold resulting in frostbite and avoid exposure to the sun resulting in sunburn.

- FOOD — As this document provides some survival strategies for 24 to 48 hours, food should not be a factor. However, if your predicament lasts considerably longer, ALL healthy mammals, birds, fresh water fish, and insects are edible. Be sure to cook all flesh.

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LIST OF ESSENTIALS

- Here are essentials to be carried in potential survival situations.
  - Water and emergency food
  - Map
  - Compass
  - Flashlight/headlamp with extra bulbs and batteries
  - Extra clothing (for season and location)
  - Sunglasses
  - First aid supplies
  - Knife
  - Waterproof matches or fire starter
  - Toilet paper
  - Whistle
  - Emergency space blanket
  - 50 ft. of nylon cord
  - 6' x 6' sheet of plastic
  - Wet wipes

- Other items to consider
  - Sun screen
  - Bactine
  - Insect repellent
  - Medications (pain and antihistamine)
  - Signal mirror
  - Water purification filter
  - Mole skin
  - Eye drops
  - Prescription glasses or magnifying glass
  - Plastic trash bags (large)

RULE OF 3'S IN SURVIVAL

- You may die in:
  - 3 minutes without AIR
  - 3 hours without SHELTER (hypothermia)
  - 3 day without WATER
  - 3 weeks without FOOD