The approach used by most search and rescue and survival trainers today is to divide survival gear into several "layers." Just like clothing, these layers are progressive and build on each other. RACES Disaster Response Team members are required to be prepared up to the 24-hour level. It is highly recommend that you also prepare to the 72-hour level. Keep in mind that these are minimums; so the better prepared beyond recommended minimums, the safer and more comfortable you will be!

Your 24-hour Pack - The concept of your 24-hour pack is that its contents are up to you, but that it must enable you to:

* Provide communications while traveling moving on foot, outdoors, in varied terrain, away from your vehicle, for up to a 12-hour shift, an "operational period" to use the ICS term.
* Provide food and shelter supplies to rest during breaks until your next shift, and remaining available up to 24 hours or until relieved
* Be prepared (in a worst case) to spend a night afield, if necessary
* Be equipped to perform your mission safely, in relative comfort.

Before going any further, an important safety tip! Careful attention must be given to the weight of necessary items that you MUST carry to safely complete your mission, your physical condition, and your need for mobility. Only you can address this issue - everyone is different - but if the weight is such that you can't carry it for an operational period, then you must change your kit so that you can! The approach for the 24-hour pack widely used by search and rescue groups and highly recommended is a total package consisting of three LEVELS:

Level I: - Those things that you normally carry on your person.

Suggested items include your cell phone or pager if used for alerting, 2 meter HT, pocket knife (Swiss Army or Leatherman types highly recommended), small "backup" flashlight (single AA LED type which clips onto your key ring), driver's license, FCC license copy and RACES ID, and some cash (small bills and change are very useful.)

Level II: **Consists of basic operating equipment, comfort and safety items**:

Personal first aid kit
"Stuffable" rain gear and hat
HT, 2 meter, 5w, minimum of ten memories, frequency agile, field programmable (if not carried in Level I), dual-band 2m/70 cm is recommended
Extra HT battery and AA battery case
Earphone
Notebook and pencil
Map and compass
Larger primary flashlight with extra bulb and batteries (4-AA type recommended)
Water bottle/canteen/ minimum 1 qt., 2 qts. are recommended
At least 2 methods of starting a fire, such as matches and lighter
Snacks and personal medications for one day
Sunglasses
Multi-tool or pocket knife (if not carried at Level I)
Wind-up J-pole antenna or;
Flexible dual-band 1⁄4 wave antenna with "tiger-tail" counterpoise

Level II items can be carried easily in a lumbar pack, multi-pocket vest, or zippered waist pouch which fits easily in your desk drawer or briefcase.

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Level III: - **Bulky life support items, in "to go" condition, stashed in a backpack,** and containing at least the Ten Essentials (less what's carried in Levels I and II, of course):

Map(s)
Compass
Knife
Fire starting materials
Signaling materials (whistle and signal mirror or flare)
Emergency shelter
Extra clothing
Water (additional 2 quarts)
Food (2 meals plus snacks)
First aid kit.

Your radio and accessories should be carried in a utility pouch, which may either attached with a snap-link to the outside of your backpack, worn on load-bearing suspenders or a chest pack.

Add your choice of the following additional items:

Emergency Shelter: Clothing and rain gear are important for preventing hypothermia as well as determining how comfortably you may spend the night. A large plastic trash bag is far better than nothing, and takes little space. A better choice, and the choice of experts like Air Force survival instructor Peter Kummerfeldt, is a large 20-mil trash bag of the type used by VDOT road cleanup crews. They are big enough for a six-foot person, very difficult to tear, and come in "safety orange." A second choice is a commercial-grade 55gal drum liner.

Mess kit: The Sierra cup is too small, GI and mountaineering mess kits are too big. A GI canteen cup with folding handle and nesting warming stand enables a quick hot beverage when warmed with a Trioxane fuel bar. Tie a military stainless steel mess kit spoon, on a lanyard over your head and poke it in your shirt pocket. You will always have mess gear. Sharpen one side to use as a knife.

Hat: Hardhats offer impact and rain protection and improve visibility. A full brim model with a full head /face cover (balaclava) of polypropylene or wool provides warmth.

Rope: 20 feet of 1" nylon, tubular "flat-line" is useful, for tying harnesses, securing equipment, etc. A 50-foot length of parachute cord is another useful item. Include snap links!

Glasses: UV protection is important in snow and desert conditions, or on the water. Impact and splash protection is important if you work with lead-acid batteries, use hand tools, or walk through heavily wooded areas. Eye protection with protective side-guards meeting ANSI Z87.1-1989 is recommended. Wearers of prescription eyewear should always carry a spare pair.

Machete or cruising axe: Useful for gathering fire good, building emergency shelters or clearing a path for a "stokes" team. (one per field team)

Saw: A folding camp saw for shelter and fire building. The "Sawvivor" is the best of the bunch (one per field team).

Spade: For field sanitation and digging fire pits. A Glock or Gerber folding military-style entrenching tool is useful and lightweight (one per field team).

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Sleep Pad: A light-weight, closed cell foam pad for sitting or kneeling during breaks. Pad insulates you from the cold ground, protects you from jagged rocks and for sleeping.

Poncho: A military-style ripstop nylon poncho rolls compactly and can be used as improvised shelter, worn as rain protection or used as a ground cover. Also good are bright colored, fabric-backed rescue-type Space Blankets®, which also function as a signal panel. Some SAR groups recommend carrying two of these, using one as a ground cover while wrapping yourself (or the victim) up with the other.

Suggestions from those who've "been there and done that…"

Toilet paper roll sealed in a plastic bag or travel-pack baby wipes.
Waterless hand cleaner / sanitizer in plastic squeeze bottle
RiteInTheRain® pocket bound notebook, which doesn't fall apart in the rain
Grease pencil and/or Space Pen®, writes anytime, anywhere
"Rite Aid®" Instant Cold Compress (7 ozs.), keeps you going if you sprain an ankle.
Insect repellant
Sunscreen. SPF 30
Canteen cup or small utility pot and spoon
Duct tape for repairs
Single-burner stove, MSR®, or Peak1®multi-fuel, or Sterno® or Esbit ® solid fuel.
Ear muffs, keep your ears warm and your radio earphone in place
Nomex hood is warm when wet and gives additional protection, about $20
Fire fighter gloves give puncture protection and are warm when wet
Glow sticks give useful light for a long time

Remember that you won't have room to carry all of this "stuff" within a practical 25-30 pound limit. Therefore, you must make decisions regarding what is important for YOUR situation, taking into consideration shared items, which may be carried by other members of your team.

The 72-hour Annex can be kept in your vehicle. It is best thought of as a resupply point for your 24-hour kit. In the Annex you should have:

2 full changes of clothes, including socks and underwear
Personal hygiene items - soap, shampoo, hand towel, razors, deodorant, toothpaste, floss
Food for 3 days - 6 meals are recommended as a minimum
Water – 1 gallon per day as a minimum, a 5 gallon container is recommended
Sleeping bag, wool blanket or poncho liner
Cold weather clothing - pants, socks, parka
Rain gear
Stock of AA batteries for radio and flashlights, 24 total are recommended

Notes on clothing: Clothing is your first line of defense against insects, abrasion and exposure to the elements. It must be durable, wind and rain resistant, comfortable to operate in and layered for adaptability. Being able to add or remove layers is necessary to maintain body heat, and to regulate body temperature during and after exertion.

Virginia weather is highly variable. A sudden rainstorm may occur at any time of year, and hypothermia can occur at surprisingly high temperatures. The first consideration is therefore keeping dry. In the fall and winter months windy, rainy days in the 40s have killed the unprepared. Here are some general guidelines:

Hat: At 40° F. an uncovered head radiates one half of the body's heat production. If you

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get hot "on the march," take off your hat and unzip your or outer garment.

Wicking initial layer: Avoid cotton socks and underwear which bunch up when sweat-soaked, causing chafing and blisters, and are cold and clammy when wet. Instead, use polypropylene or similar material next to the skin to wick away perspiration. Polypropylene underwear and a wind shell or anorak of 60/40 ripstop material is amazingly warm during active operations or periods of heavy exertion, if you have a wool sweater or synthetic fleece to put on during rest stops.

Outer wind / water resistant shell garment: Breathable fabrics such as GoreTex® are effective. A less expensive alternative is 60/40 poly/cotton ripstop or sateen fabric of the type used in military field uniforms. Buy the best you can afford. Cheaper garments are more susceptible to tears and abrasion. GoreTex must be kept clean to retain its qualities!

Warmth layering garment: Wool is a popular choice because it is warm when wet. A good modern equivalent are synthetic fleece or pile. Quilted bunting of polyester fiberfill is also warm when wet. Beware: down garments collapse and lose their loft in cold/wet environments.

Boots. Protect your feet and prevent injury, especially falls. Your feet are your basic means of transportation and deserve careful attention. Sturdy hiking boots having a traction sole are recommended. Boots should be of all-leather construction and waterproofed; wildland firefighters are very fond of a product called Obernaufs.

Socks: Wear light non-cotton sock liners next to your skin to wick away moisture and control abrasion. Over those wear heavier wool or wool-blend boot socks for cushioning and warmth. This combination is suitable year-round. An extra pair of dry socks, sealed in a Ziploc® bag in your pack has a dramatic effect upon your attitude in cold/wet conditions. Moleskin should be carried by everyone and applied at the first sign of "hot spots" which lead to blistering.

Gaiters: Often overlooked, these are handy to keep brush, dirt, rocks, rain and snow out of your boots. When sprayed with insect repellant they are your first line of defense against biting insects.

Gloves: Leather gloves are necessary for any rope work, protection from rocks and briars and in any working with hand tools or fire. Use wool, silk, or polypropylene liners for layering and finger-less mitts for warmth when manual dexterity is required.

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