Chapter 15 – Safety & First Aid.

This information was taken from www.replant.ca . The author is Jonathan Clark (Scooter). I have changed it only slightly from his original. To name a few changes for example, I have deleted web links that went nowhere, changed spellings and added WCB's website address. Please feel free to photocopy, share with other planters, and disseminate this amazing article in any manner that you choose.

Introduction

Although this chapter on safety and first aid is not the very first chapter I have provided, I sometimes think that it should be. No matter what you are doing on the job, no matter when or where it is happening or why, safety should always be your number one concern. The planting industry is a very dangerous one, which has one of the highest rates of lost-time accidents of any industry in Canada. Some other industries may be more dangerous, like working as pipe-jacks on oil derricks, because you are more likely to have lethal injuries in those industries. However, the sheer number and variety of injuries that can be experienced while planting is simply staggering. This is a longer chapter than most, because I attempt to go into so many topics in such detail. However, please take the time to learn this material. Someday, it could save you or a co-worker from a serious injury, or death. I hope that a lot of companies pick up on this chapter, and photocopy the entire chapter to give to each of their employees at the start of the upcoming planting season.

Disclaimer: When considering safety issues, making a mistake or following improper procedures can result in injuries or fatalities. The information provided herein is provided on a "best-efforts" Good Samaritan basis. I have made every effort to ensure that the content contained herein is correct and up-to-date with today's accepted standards. However, the reader is advised to do additional research before relying on statements contained herein, to ensure that personal safety is maximized, both for yourself and for your fellow employees. The author will accept no liability for any injuries, fatalities, or property damage that arises as a result of the use of this information, whether negligently or otherwise.

Specific Safety Topics

Emergency Evacuation Plan

This is something which has received a lot more attention in just the past several years. Having these explicit evacuation plans is part of a number of safety programs now, and also seems to be a requirement by the Workers' Compensation Board in both Alberta and BC. All planters must be aware of the evacuation plan at all major work sites (ie. on the block, and in camp), and should take the initiative to briefly explain the plan to any outside visitors to the block or camp so that nobody is "out of the loop."

There are five major components of an evacuation plan:

1. Mustering or marshalling points.
2. Emergency signals.
3. Knowing your location.
4. Knowing how to communicate with outside assistance.
5. Having adequate transportation facilities available to perform an evacuation.

First, your plan should have a "mustering point" which is simply a place for everybody to meet during an emergency. Pick mustering points that are easy to remember. On the block, the location of the main first-aid vehicle is a great mustering point. In camp, common picks would include either the area in front of the first-aid tent, or in front of the kitchen, or whatever areas seems to be a logical place for a safe meeting. In addition to having a designated mustering point on the block or in the camp, it is useful to have a secondary mustering point, or a backup in case things go wrong. For instance, on the block, your primary mustering point would be useless if the first-aid-vehicle was on fire, or if there was a bear there. In such cases, a good secondary point would be "50 meters down the road from the truck, back toward the entrance to the block," or something similar. In camp, any number of problems can arise. I have often used "the driveway at the entrance to camp" or "the reefer" as good secondary mustering points for camp.

The next part of the plan is to have some sort of emergency signal which is used to gather the crew. I have heard of several common signals, such as "repeated yelling," "repeated blowing of the bear whistles," "repeated blowing of the truck horns," etc. I think that it is smart to use a combination of methods as possible emergency signals, so that if any of the above techniques are used, all the planters within earshot know that there is a problem, and they should get back to the trucks to figure out what is wrong. I'm also not a big fan of using the bear whistles as a general emergency warning unless it is actually caused by a bear. This will avoid confusion. Some people might hear the whistles, and start looking around for a bear, not realizing that the emergency is something entirely different back at the vehicles. So in other words, I would suggest sticking to "repeated yelling" or "repeated truck horns" for general emergencies. For this reason, I also prefer not to see

planters leaning on the horn at supper-time to let other people know that it is time to head back to camp for supper. This sort of thing confuses planters when a real emergency comes, and they start thinking that someone is just blowing the horn for minor reasons. If planters are staying out on the block too long while others are waiting impatiently at the truck to head home, the foreman or crew boss should deal with the problem early in the season. The planter should be responsible for having a watch, and etiquette dictates that the rest of the crew should not have to wait impatiently while you are trying to bag out.

The third major component of the plan is ensuring that all personnel know their location, know how to get back to camp, and know how to get to the nearest town/hospital. I like to try to get a couple maps of the area before the contract starts, and make photocopies for each vehicle. It's good to have an "area map" of some sort that shows how to get from the blocks (and camp) to the nearest town, and then some smaller scale maps if appropriate which provide more explicit directions. It is fairly common, unfortunately, for planters to have no idea how to get between the blocks and camp, because they often sleep on the drives to and from the block. However, if you have maps in each of the vehicle, you'll be a lot better off.

The fourth component of the plan is to have a sheet listing important communication information, and to make a copy of this sheet for each vehicle. Planters should, under good conditions, memorize the key parts of this information. However, having a copy of the key info in the vehicle is a very smart backup. My communication sheets usually include a lot of info, including: radio channels in use in the area, phone numbers for key personnel in your own company, phone numbers for local fire, ambulance, police, and helicopter services, plus the general contact numbers for the local forestry office and forest fire reporting numbers. If you are in Alberta, contact info for the appropriate oil-field companies is also important. Of course, it is also important not to just know these numbers, but also to have communication devices. At a minimum, each crew should have a VHF or UHF two-way radio, and either a cell phone or mobile phone or auto-tel. The more communication devices, the better, and of course this will depend on your circumstances. As the supervisor in my camp, I usually carry a mobile radio, cell phone, auto-tel, AND satellite phone in my vehicle, and try to stay close to the crews. Each of our company vehicles has a two-way radio installed so we can communicate with each other. Many of the foremen also bring cell phones out, on their own initiative. Remember though, even though cell coverage is getting to be very comprehensive in most parts of Alberta, thanks to the oil patch, cell phones are absolutely useless in many areas of BC. Know what will work before you hit the woods, and have the right equipment available.

The final issue for emergency preparedness is to make sure that you always have available transportation. If you get your truck stuck on the way into the block in the morning, your foreman should try to get everyone planting as quickly as possible (remember, you don't get paid when you're not planting) but there should be one person left behind to start trying to evacuate the truck. The foreman should return to help get the truck out as soon as possible. You don't want to have a time-critical first-aid emergency and discover that the truck has just been sitting in a mud-hole all day, and can't move. On a smaller scale, I always like to ensure that our first-aid vehicle is parked facing the front of the

block, and there is nothing on the road in the way that would prevent it from getting out quickly. It seems like overkill, but every second could count in an emergency. Finally, by far the most important thing to remember is to make sure that the vehicle has enough fuel to get to the hospital in an emergency! Whoever is driving the first-aid vehicle absolutely must remember to fill up the fuel tank each night upon returning to camp, as this vehicle should have priority on fuel over other vehicles. Don't leave filling up until the morning – emergencies can happen in camp too. Actually, every vehicle should be topped up every night in camp if possible, because even the tree delivery trucks are sometimes used in emergencies.

If you and everyone on your crew knows all of the information that is part of a full emergency evacuation plan, and has the right communication equipment available, and vehicles that are ready to roll for town at all times, then you should be able to feel a lot more comfortable on the block.

Weather Conditions

Weather, especially in the mountains, is incredibly tricky to predict. If you've planted for a couple years, no doubt you've got stories about the time you got hit with hail the size of bottle caps, when it was sunny out. Or the rain storm that washed away peoples' tents. Or lightning strikes so close that the hair on the back of your neck stood up. The truth is that planters need to be ready for all conditions, since the weather can change drastically, several times per day. I've seen thirty degree weather at the end of April, and I've seen snow storms in July and August, so listen to the boy scouts and "be prepared."

Hot weather can be a problem, due to sunstroke. Wear a hat, if possible, to keep the sun off your head. Many people get sunstroke due to the sun cooking their skull or the back of their neck. Drink lots of water. Even on cool days, take more water to the block than you think you'll need. You may not need the water right away, but if you get a sudden hot day, you don't want to get caught short. Eat a bit of extra salt on your food, if you can, but don't go to extremes such as taking salt tablets. Salt is good because it helps you to retain fluids, and also because your body needs salts for regular metabolism to occur properly. You'll also probably want to have sunscreen available, especially at the start of the season before your first good burn. Apply lotion liberally to sensitive areas such as the nose, back of the neck, and top of the ears.

Cold weather can also be a problem. Ironically, you can have problems with cold weather in the morning, then deal with overheating issues during the middle of the day, and then get hypothermia from a sudden storm in the afternoon. Cold weather is especially problematic when it is raining or hailing or snowing, because water has a very high specific heat value and carries heat away from your body more quickly than when you are in a dry cold. Always carry a kit bag with an extra sweater and rain gear to the block, in case the weather suddenly turns bad. You may feel silly carrying a sweater and rain gear out with you on warm mornings in June and July, but it is really easy to be caught by surprise with

bad storms throughout the entire summer. One thing to be aware of is that the back of your neck is one of the areas of your body most susceptible to the transfer of heat, so if it is raining and you're cold, you should protect the back of your neck somehow (hoodies are great for this, even if they do end up getting wet). Also, it is good to have sweaters made of wool rather than synthetics, because wool is a much better insulator than cotton when it gets wet.

It can be wise to carry a pack to the block with you that has a raincoat, rain pants, long johns, sweater, dry long-sleeved shirt, and shorts. Most of those items are for emergencies when the temperature drops, and the shorts are for the days when it gets warmer than expected and you want to shed your pants.

If you end up being caught on the block during a lightning storm, use common sense. Lightning is supposed to be attracted to tall objects, so some people think that on a cut block they are probably fairly safe if they are couched down, continuing to plant. I've had lightning strikes within 50 feet of myself a couple times, and that gave me a healthy respect for storms, especially since one of those strikes set me down on my ass on the ground. Another foreman at Folklore was hit by lightning a few years ago, so don't think that it can't happen to you. Most intense lightning storms will pass within forty minutes, so you would be well advised to get into a safer area and wait out the storm, rather than risk electrocuting yourself.

Smoking

The role of smoking in our society has changed a lot within the past two decades. In a study by the National Clearinghouse on Tobacco and Health Program, the rate of male smokers in Canada decreased from 44% in 1981 to 24% in 2001. As society has gradually changed over the years, so has the general acceptance of smoking in the workplace. Many people don't associate a planting block as being part of the workplace, but it is. So are the company vehicles, and so are the common camp structures, such as the kitchen and mess tent. The Workers' Compensation Board has completely banned smoking from the workplace in BC, partly due to changes in society, and partly as a move to reduce compensation in the long-term for employees who become sick as a result of long-term exposure to second-hand smoke in the workplace. As a result, smoking in company vehicles is no longer permitted, nor is smoking in the camp structures. Planters who smoke are starting to learn some common sense – go outside the mess tent when you're having a cigarette, and have a cigarette before you leave the block at night, rather than in the vehicle on the way home.

However, workplace regulation aside, there is a lot more to the smoking issue than just good etiquette to fellow workers. The big reason why smoking is a safety issue is due to the risk of fire. For this reason, smoking is often banned on the planting blocks, if not by the licensees, at least by planting contracting companies' internal policies. Typically, planters are being told that they may ONLY smoke on dirt roads, rather than in the block itself. Some conscientious smokers are starting to carry small tins that can be used as

combination ashtrays and a place to store cigarette butts after use, rather than throwing them on the ground. It is probably these smokers, who practice common sense, that have far more positive impact on the argument to permit smoking in certain conditions than the careless smokers who just complain about their rights.

Getting to the root of the problem, in terms of the concerns of the forestry industry, careless smokers are far more likely to start forest fires than non-smokers. In 1994, a major fire was started near Prince George, allegedly by an employee of one of the big planting companies who carelessly dropped a cigarette on a block. That case went to court, with the Province of BC seeking $5 million in damages to cover the losses and the cost of fighting the fire. In more recent times, employees at another company started a smaller fire near Prince George that burned several acres. Within my camp, I have seen a cigarette butt that was discarded into an empty tree box start a fire several minutes later, which could have turned into a bad situation. Essentially, the problem is that a lot of people do not realize just how easy it is to start a fire from a discarded butt. The materials on the blocks and forest floor are often extremely dry, even early in the season, and can catch fire in seconds. I personally once started a fire in Alberta just because the exhaust of my quad was hot and started the grass on fire as I was driving down a pretty clean seismic line. I had to alert the forest service, who brought in a helicopter and work crews to put the blaze out. At the right time of year, in the right areas, a single cigarette could easily start a fire that would wipe out hundreds of miles of valuable timber. Now you understand why so many people who work in silviculture are so unhappy to see planters smoking on the blocks.

Having said all that, use caution when smoking. Our company has the following set of internal rules to minimize the threat of fires: No smoking within twenty (20) feet of jerry cans, quads being refueled, propane tanks, or the fuel storage depot in camp. No smoking on any block, period. If you're smoking in the field, you must smoke on major roadways (solid dirt or gravel). Cigarette butts may not be left on the roadway. Butt them out, and keep them in your pocket until you can put them in an ashtray in the vehicles. That way, if anything catches on fire, it is yourself, which should teach you to be careful. A "smoker's tin" is a good thing to carry with you if you do smoke – it's a great way to tidy up after yourself. Don't just bury your butts: I can think of one example where a buried butt caught some underground roots on fire, which smoldered for several hours before lighting the block on fire, much to the shock of the crew working there.

Finally, foremen should try to respect people who do smoke IF it doesn't cause other conflicts. Take a couple minutes to allow smokers to have a cigarette before driving home, so it is easier for them not to smoke in the vehicle. If you have a choice, set their cache up beside a dirt-road that they can smoke on, rather than right in the middle of a grassy field (if that makes sense from the planting perspective). Set up an area in camp which is tarped overhead, so when smokers leave the mess tent for a cigarette, they don't get rained upon.

Bears and Wildlife

Some people have a healthy respect for wildlife. Other people need one. In the bush, several types of animals can be dangerous to some degree, but the moose and the bear are probably the only two that you really need to worry about, aside from common sense issues like "don't pick up a porcupine." A cow moose can be a danger, especially if calves are nearby, because she is a big animal. One of my planters was chased by an angry moose once on the first day of the season, and afterwards, he admitted that he was pretty scared once he realized it was coming at him and very angry. So if you end up running into a large moose on your piece, keep an eye on it. Hopefully, and this is the case most of the time, it will run away once it sees you.

Bears are another story. Bears are dangerous because they are unpredictable. Most of the time they will be startled by the appearance of a human, and cautious. Bears are a common sight if you have planted for very long, but don't let this familiarity lead to complacency. It doesn't take long before humans become familiar to a bear and they lose their initial fear of you.

There are two main types of bear to be aware of. Grizzlies are a type of brown bear, and they can be pretty big compared to black bears, which are smaller and more common. Grizzlies have a large range, sometimes patrolling an area as much as thirty kilometers in diameter. They feed on a wide variety of fruits and vegetation. Their sense of smell is so strong that they can locate carrion (dead animals) from several kilometers away. They occasionally will prey on animals as large as moose, elk, deer, goats, and sheep, when they can be caught. Black bears have a very similar diet, although they are less likely than grizzlies to attack the larger animals.

In terms of physical appearance, grizzlies are generally larger. However, a fully-grown black bear may be larger than a young grizzly, so that can be deceiving. Also, you should not rely on the colour as a means of differentiating between the two species, since both species can have a large variety of colours, from light brown to very dark. There are two safe ways to differentiate between grizzlies and black bears, and that is by visually inspecting the "hump" and the snout. All brown bears (grizzlies) have a distinguishing shoulder hump, which is a mass of muscle. The muscle is used to help them dig more easily, and makes them stronger when swatting at things with their paws. Black bears (without the hump) can still dig, but not as well. In terms of the snout, grizzlies have a concave or rounded face, whereas black bears have a more extended and tapered snout. Of course, there are a number of other differences, but these are the most obvious two, and of the most use when a planter is trying to figure out what kind of bear he or she is dealing with.

If you see a bear at a medium distance and you are unprotected (ie. not in a vehicle or not with a large group of people), detour as far away from it as possible while keeping an eye on it. If the bear is located between you and a place of safety, such as a vehicle, wait for the bear to leave the area. If the bear is approaching you, make it aware of your presence by standing as tall as possible and waving your arms and shouting. Remember that bears do not have good hearing or vision, although their sense of smell is quite incredible.

If you can make the bear realize that you are in its path, it will usually (hopefully) change direction.

If a bear stands on its hind legs, it is not an indication of aggressive behaviour. It is probably trying to use its senses more effectively to try to identify you. Speak loudly and firmly and slowly back away. Never run from a bear – they can run about four times as fast as the fastest humans, and look upon flight as a sign of weakness. If you see a bear displaying strange behaviour, such as turning sideways, snapping its teeth, slapping the ground with its paws, or laying its ears back, this is a sign of danger (for you) and a warning to leave the area – don't assume that the bear is hurt and needs help, or is scared of you. The usual reason for unfavorable conflicts with bears (and other animals) is due by inappropriate *human* behaviour. It is rarely the fault of the bear.

If contact is made with a bear (i.e. you are attacked), the best thing to do is probably to drop to the ground and play dead. Lie on your stomach, clasp your hands behind your neck, and use your elbows and toes to avoid being rolled over, to prevent more vulnerable parts of your body from being exposed to the animal. Remain still and *try* not to struggle or scream (I would assume that this would be difficult). A bear acting defensively will not stop attacking until it is quite sure that the threat has been eliminated. If you have been attacked and the bear suddenly stops, do not move or make any noise for quite a while, until you are *absolutely certain* that the bear has completely left the area.

Some planters carry "bear mace." This is a strong form of spray which is fairly similar to "personal defence" mace, however, the two types of spray are not the same. Bear sprays will clearly be labeled with the word "bear" on them – if the product that you are looking at doesn't have the word "bear" on it, it is designed for people and will be far too weak for use on a bear. In the States, the EPA prohibits bear mace from being sold in containers of less than 225 grams, although I'm not sure about the CSA regulations. Optimally, your spray will last for at least six seconds (in case you are charged more than once). Also, under optimal conditions, you should be able to spray when the animal is between twenty and twenty-five feet away, so the bear has a chance to experience the effects of the spray and make a conscious decision to turn away before it reaches you. Be aware that mace is an effective deterrent under the right conditions, but that it can be adversely affected by wind, rain, temperature extremes, and the distance to the bear when the spray is discharged. If you have ever been hit by mace, you will know how strong it is. Never carry a can of bear mace casually in a vehicle (I can think of one busload of planters who had to wait 45 minutes for the air to clear before they could get back onto the bus), and most especially, *never ever* carry mace on a helicopter. If the can is accidentally punctured the helicopter will crash and you will probably die.

The biggest mistake that planters can make in camp is to store food, candy bars, toiletries, or other scented treats in their tents. Shaving kits, perfumed soaps, etc. may be left in dry tent, etc. instead of your own tent, to minimize personal risk. Never store food in your tent (use common sense not only to prevent bears from visiting you, but also so that smaller animals don't try to rip into your tent when you're away). Make sure that you always wash your dishes with soap and water before you come back to your sleeping area – even

traces of food can attract bears with their incredible sense of smell. The camp should also have a secure area for storage of bags of garbage, and the dish pit should be covered. Planters should take pride in their camp and not leave scraps of food around, and someone should be designated to empty all garbage cans each evening and throw the bags into the designated storage area (preferably a wooden trailer or stronger). The garbage trailer should be taken to town at least once per shift, at a minimum. On the block, garbage should NOT be left on the blocks, including biodegradable stuff such as apple cores, orange peels, etc. All refuse must be carried out of the block at the earliest possible convenience (ie. Daily for regular garbage, shortly after block completion for cardboard boxes).

NEVER approach, feed, or attempt to lure bears. No matter how innocent and small they may seem (some may only be the size of a large dog), remember that very occasionally they do kill people. Of course, don't go to extremes and panic about these animals: as a planter, you are far, far more likely to be killed in a motor vehicle accident than you are to be even mauled by a bear. If you treat bears with respect and leave them alone, and don't tempt them with things that smell good, you should be safe in almost all circumstances.

Beaver Fever

Do not drink water directly from streams, ponds, or puddles due to the risk of bacteriological infections, commonly termed "beaver fever." There are literally thousands of different varieties of bacteria out there, so even if you spent your childhood drinking out of creeks and streams with no memorable adverse effects, it might be that you built up something of an immunity to bacteria in your local area, and drinking from a creek while planting could expose you to different bacteria that your body is not used to. The effects of beaver fever can vary greatly, from something as insignificant as a couple days of mild diarrhea, to something as dangerous as days or weeks of heavy sweating, chills, fever, constant dehydrating diarrhea, and vomiting. Planters have been forced to miss the rest of their planting season in the past after contracting beaver fever, although luckily the frequency of this problem has diminished significantly in the past decade or so as people have placed a greater emphasis on using only potable water.

Potable water refers to water that is safe for drinking. To be safe, your camp should only use drinking and cooking water from an approved water source in town, ie. from a hose at a garage or car wash that is hooked up to a treated municipal water system. In the past, it was often a common practice to sterilize creek water by adding bleach or purification tablets to creek water, and in fact some provincial health authorities condone this practice (XXXX). This isn't really much different than how the municipal water sources are purified by chlorination and filtering, although to be safe I would highly recommend the town water sources as being preferable to do-it-yourself purification.

If your camp is located in an area with no water nearby, your company may find it more economical to truck in water and store it in huge plastic water reservoirs, rather than moving the camp to a more distant location. If this is the case, check with the water

hauling contractor to see exactly what you're getting. A certified water hauler will have his trucks inspected and tested regularly by provincial health authorities to certify that the water is potable, and he should be able to provide copies of such documentation to your camp in case you need to provide them for a health inspector. Make sure that the hauler does not use the same vehicle for potable and general use (non-potable) loads. There will probably be a price difference between the two types of loads. Incidentally, if your camp is trucking water in, each load will probably cost several hundred dollars. Be careful not to leave the showers running after you're done, and waste any of that water.

If your company is trying to minimize costs, which it should be doing, then getting loads of non-potable water can be effective. If this is the case, everyone in camp should know which water is safe for consumption. In my own camps, we always use a "dual-source" system. We have blue water barrels which are designated as always containing safe water from town – someone takes the empties to town in a pickup to refill. The water for the showers and for washing dishes comes from either a creek and water pump, or from the deliveries to the camp's water reservoir. You have to assume that this water is not safe for consumption. Try to avoid brushing your teeth in it, and when washing dishes, a "three-sink system" must be used. The first sink will contain the wash water, hopefully with soap. The second sink will contain rinse water that has been sterilized by the addition of a small amount of bleach. The final sink is rinse water without bleach. Remember that since this final rinse water is not sterilized, dishes should be allowed to completely air-dry before they are used. Cooks may also use non-potable water for cooking, but it always has to be boiled properly.

On a final note, "beaver fever" is not unique to Canada. Bacteriological infections from drinking water cause problems around the world, and are probably the single biggest health problem in third-world countries. In Mexico, "beaver fever" is known as "Montezuma's Revenge." Tourists are warned not to drink even tap water due to improper sterilization techniques, to brush their teeth with bottled water, and to make sure that drinks don't contain ice cubes (which are often made with impure water). Many travelers who don't follow recommended precautions will find themselves quite sick several days later, as their bodies are vastly unprepared for the strains of bacteria in those regions. Your risk of contracting an intestinal infection from drinking out of a creek in Canada is admittedly far less severe than in more exotic locations, but it is still better to be safe than sorry. Always carry more than enough drinking water from camp to get you through even the hottest days. Discarded four liter milk jugs make excellent cheap water jugs.

Vehicle Safety

There are a lot of hazards involved in the reforestation industry, and literally hundreds and hundreds of ways to be injured. However, by far the biggest hazard is vehicle safety. There may be lots of other ways in which you are more likely to get an injury, but most of those other hazards are not likely to kill you. Unfortunately, vehicle accidents can and do kill tree planters on a regular basis. I cannot think of a single season in recent years

where there has not been a motor vehicle accident of some kind which killed a planter. In an industry with only about ten thousand workers, that's an unacceptable accident rate. The chances of you being seriously injured in a motor vehicle accident while tree planting are higher than the chances of winning a decent prize on a one-dollar scratch & win lottery ticket, and look at how many people gamble with those. Gambling with unsafe driving practices just isn't worth it. I've seen dozens of vehicle accidents over the years, and some of the planters in my own camps have been killed in accidents in company vehicles, so don't think that it cannot happen to you.

I'm not going to go into great detail about vehicles here, since there is an entire chapter devoted to vehicles, both in terms of mechanical issues and general safety information. However, I am going to summarize some of the best safety practices in a short list here:

- Always wear a seat belt.
- Make sure you have a cautious and responsible driver behind the wheel, with a valid license and any other required permits, who has experience driving the type of vehicle involved. I go above and beyond provincial regulations and insist that all drivers in my camps have class four licenses, with a driving abstract that shows no more than two minor violations in the past two years of operation, and no major violations or accidents.
- Do not drive too fast for road conditions. You will notice that I did not say, "Don't drive fast" or "Don't drive over the speed limit." The reality is that the maximum reasonable safe speed can vary tremendous according to conditions at the time. Driving at 90 kilometers per hour on a flat smooth gravel road under sunny conditions with no traffic may seem safe at the time, but what happens if an animal runs out in front of you? Be prepared for the worst.
- If the vehicle breaks down, make sure you post warnings of some sort for other approaching vehicles, if your vehicle is not fully visible from a good distance.
- If you are changing a flat tire, make sure the vehicle is very firmly braced, ie. with rocks behind the opposite wheel, in gear, and with the emergency brake on.
- Do not travel in a vehicle that is not mechanically sound. Even minor problems, like a slow leak in a tire, should be fixed immediately if possible. There are lots of times in tree planting when circumstances prevent you from fixing a situation immediately, but at least make sure that you fix the problem at the earliest possible opportunity.
- Do not let people ride in the back of trucks, or on the sides or tailgate. This goes back to the fact that everyone should be wearing a seat belt at all times. If you're the driver, you're in charge. Establish from the start that you won't allow passengers to go without their belts on.
- If you are the driver and you are tired, then either pull over into a safe area and have a nap, or find an approved alternate driver to take over the wheel.
- If you are a passenger, and you feel that the driver is operating the vehicle in an unsafe manner, let that person know your concerns immediately. If the driver continues to drive in an unsafe manner, inform the camp supervisor immediately.

In addition to the huge risk of injuries and fatalities that arise from motor vehicle accidents, remember too that if you failed to act to prevent an accident, you will probably be held partially liable. This can mean that you can easily go to jail if you knowingly operated a vehicle in an unsafe manner, or failed to ensure that your passengers were wearing seat belts, or failed to replace a poor driver with a more responsible and careful one.

All in all, proper operation of motor vehicles is the one area of safety that I care about and emphasize more than anything else. I hope that if I continue to emphasize this topic strongly enough, on a daily basis, I can help prevent any more deaths in my camps.

The Buddy System, Roll Call, and Working In Isolation Guidelines

The Buddy System was originally conceived as a way to ensure that planters who got hurt in the field would have some sort of immediate assistance in dealing with emergencies. In general, the Buddy System rule states that every planter must have a planting partner located in close proximity. These partners must remain aware of each others' location and activities. If an evacuation occurs, or the crew is moving to a new location, each planter is responsible to check for the presence of their planting partner.

One drawback of the system, of course, is that some planters prefer to work alone in their pieces. This is still possible – buddies can certainly work in adjacent pieces, out of the same caches, on open blocks (where planters can easily see each other). However, if the planters are working on an out-of-the-way piece where there is no visible communication with the rest of the crew, a pair of planters should be assigned to the piece.

If a WCB officer comes up to you in the field, you should be able to name your planting partner and point out where he or she is working at all times, if you aren't actually working side by side. You should also be able to point out at all times where the crew's first aid attendant is working (the foreman should announce this to the crew in the morning) and know roughly where the foreman is most likely to be found. Even saying something like "the foreman does regular patrols around the block while checking and delivering trees, so he could be just about anywhere at the moment" is a better answer than simply saying, "I don't know."

There are a number of emergencies which can be facilitated by the presence of a planting partner. I have seen examples of planters who have had problems in the field relating to sunstroke, heat exhaustion, broken limbs, blacking out & stopping breathing, insect stings, and other problems. In many of these cases, prompt reaction by another planter (and fast arrival of first aid assistance) prevented situations from becoming far more serious than they actually were.

In general, when entire crews are working on a block, there should be a fair amount of interaction between planters and management personnel such as quality checkers, tree

runners, and especially the foremen. It is when employees start working in secluded areas that larger problems arise, and "working in isolation" rules need to be implemented.

"Working in isolation" rules should apply to any group of workers who are working together in the bush. People tend to think myopically only of small scale examples when talking about working in isolation, such as a pair of cooks working together back in camp, or a pair of planters working on a piece away from the rest of their crew, or even a small crew working far away from the rest of the camp. No matter what the size is of the group being assessed, the basic assumptions are the same:

1. All workers must have access to adequate transportation.
2. All workers must have access to adequate communications equipment.
3. Certain minimum standards of first aid assistance must be available.
4. Workers must know how to respond and react to problems and emergencies.
5. Regular check-in procedures must be implemented when individuals or small teams are working by themselves.

We'll cover each of those areas now, one at a time.

Transportation

Workers must have access to adequate transportation whenever possible. If the crew is small and travels in a single truck, the foreman and truck should stay on the block with the crew all day, wherever possible. Situations sometimes arise when the truck needs to leave for short periods of time, perhaps to get more trees, but advance planning (running trees the night before) should attempt to minimize these incidents. If a group of planters are planting on a second block that is a kilometer away from the rest of the crew, and therefore within reasonable walking distance, a vehicle need not be parked at the second block. However, if part of the crew is located three or four kilometers away from the rest of the crew, either a quad or truck should be made available.

The vehicle should be ready to leave for the hospital at all times. If the truck gets stuck on the block in the morning, or gets a flat tire, the foreman should get the crew started planting, then deal with the vehicle problem immediately, rather than leaving it for the end of the day. If the foreman won't have time to deal with the problem for several hours, one of the crew members should be assigned to deal with the truck while the rest go planting.

Finally, the vehicle should always have sufficient fuel to get to a hospital directly from the block, and it should also have a good spare tire and sufficient seatbelts for all occupants. The driver should refuel the truck upon getting back to camp at supper, rather than waiting until the next morning. That way, if there happens to be a fuel shortage in camp, the problem will be discovered and can be dealt with immediately rather than causing a problem the next morning. This can be a significant issue in camps located far from the highway, if there are a lot of trucks in camp and the blocks are far from camp.

Communications

Whether a group of crews are working together, or a single crew is working by itself and far away (more than twenty kilometers) from other crews, there should be access to communication devices that let you talk to the outside world. This might mean that each crew has a mobile radio phone, each foreman has a cell phone, and the camp shares a satellite phone which is kept in a designated vehicle. Of course, the use of these various devices depends exactly where you are working. Mobile radio nets are becoming increasingly rare in BC and Alberta in recent years, although cell coverage is improving. Satellite phones are the most effective solution in general, but their high costs keep their use limited. It will probably be 2010 before satellite phones become commonplace and truly cost-effective.

Every tree planting vehicle should also have a VHF two-way radio installed, so that workers can talk to each other, and sometimes to general traffic on logging roads. Usually a camp will agree on a pair of communications channels to be used – the "road" channel of the area, if traveling on active logging roads, and the "company" channel or "chat" channel, for informal chatter between employees that shouldn't be broadcast on the road channel.

Planters working in very isolated areas (i.e. heliblocks) can be given handheld versions of the VHF radios to allow them to communicate with support personnel "on the outside" or with a helicopter, if one is being used.

First Aid

There are a lot of provincial regulations in place which dictate how much first aid must be available at the work site. These requirements may change from time to time. For that reason, you would be well advised to refer to the regulations as set out in the various provinces. For example, the website of the Workers' Compensation Board in British Columbia is here: http://www2.worksafebc.com/Topics/FirstAid/Home.asp . Exact requirements may vary depending upon factors such as surface travel time to the nearest hospital. The WCB's Occupational First Aid courses in British Columbia are 8 hours for a level 1, 35 hours for a level 2 and 70 hours for a level 3. Alberta's regulations are slightly different than British Columbia's.

In addition to meeting provincial requirements, I strongly suggest using common sense. Anyone who can reasonably be expected to be working alone or in a position of responsibility at some time should, at a very minimum, obtain a Canadian Red Cross Standard First Aid ticket (a 16 hour course) or its equivalent. This would include every foreman, at least one veteran planter on each small crew (a couple on big crews), the checkers and tree runners, the supervisor, and both cooks. This is not a legal requirement, but just good common sense. Your company should support all efforts to meet and exceed basic

requirements. Hopefully you will never need to use this training, but even one saved life justifies the cost of having hundreds and hundreds of people undertake this training.

Emergency Response Plan

Workers must know how to respond and act when problems and emergencies arise. To ensure that this happens, the supervisor and safety coordinator (or head first aid attendant) should put together an emergency response plan before going into the field, and make sure that all planters understand the plan. The exact contents of the ERP are discussed elsewhere in these safety notes.

Check-In Procedures

Check-in procedures must be implemented and used for every group of workers. The exact procedures should be "reasonable" and useful depending on circumstances. Some examples might be:

- A small crew is working far away. The foreman checks in with the supervisor in the morning and says, "We'll be stopping at 5:30pm, so expect us home for dinner by 7pm."
- A small crew is working far away. The foreman checks in with the supervisor in the morning and says, "We'll be stopping at 5:30pm, but if I think we can finish the block by 7:30pm, we may have a vote to work late. Don't start to worry or come looking for us unless we're still not back by 9pm. I've let the cook know that we may be late."
- The cook talks to the supervisor in the morning and says, "We're good today, we can hear the foremen on the radio all day long, so don't worry about checking in with us during the day today."
- The cook talks to the supervisor in the morning and says, "We had a bear walking through camp yesterday. Can you stop by camp sometime around midday if you get a chance?"
- A foreman is looking after six people, split up into three pairs, working on three blocks a kilometer apart. He tells each pair to turn on their handheld radio between 10am-10:15am, and again between 1:30pm-1:45pm, and lets them know that if he doesn't hear from them at those times, he will come to do a visual check.
- A foreman and planter come to the supervisor after supper to say that they are running a load of trees to the block for the following day. They say, "We're heading up to block 5-27 right now. If we're not back by 11pm, can you come looking for us?"
- The supervisor tell the office one afternoon, "I'm going out with the checker to check out some blocks in Vanderhoof tomorrow. If you don't hear from us by 6pm tomorrow evening, assume that we got stuck, and send a truck to help us. We'll take food and water and warm clothing to be safe, but the satellite phones are being used elsewhere so we'd like a backup plan. We'll be in the Blue Road area on channel 72."

As you can see from the previous list of examples, there are no hard and fast specific rules to follow. The Workers' Compensation Board is concerned that some sort of regular check-in procedures are used when people are working in isolation, but their usual desire is to see some sort of arrangement in place that can be interpreted as being "reasonable" under the circumstances. You should note that in the eyes of WCB officers, it is very important to document and follow through on your check-in procedures. If you are a supervisor, verbally informing a WCB officer that you had planned to check on the cooks at lunch will probably be considered to be insufficient. However, if there is a written note in the cook tent to confirm that you'll stop by between 1pm-2pm daily, or notes in your personal supervisor's log book/diary to confirm that you have been making such checks on a daily basis, you should be in good shape. As with many other areas where government occurs, documentation is just as important as actually doing what you say you are going to do.

Roll Call

In a camp emergency, if all workers are gathering at a central meeting point, each foreman (or a designated assistant) should quickly do a head count and then roll call for the crew, to assess whether or not anyone is missing. Foremen should also perform roll call on a very regular basis, including before leaving camp for the blocks in the morning, before leaving the block at night to return to camp, and during regularly scheduled meetings in camp.

If part of the crew leaves the block early for supper at the end of the day, they must have the foreman's permission to leave early, and must ensure that by taking a particular vehicle, they don't cause seating problems for the rest of the crew. Somebody who remains on the block must know exactly who left in that vehicle, so that people do not inadvertently get left behind on the block at supper. Don't laugh! It happens far more frequently than it should.

Quad/ATV Safety

I will not go into a full discussion here of what is involved in operating a quad. There is a full chapter elsewhere devoted to the topic. If you are driving a quad, you should have gone through an official ATV certification course at the start of your season. Many companies are now making such courses an absolute requirement for all quad operators, and are picking up the tab for the training. Other companies are reluctant to invest in their preventative medicine, but if it prevents a WCB claim due to a broken arm or leg, the course is worth it.

The biggest thing to remember when using a quad is to always, always wear a helmet. Once you get used to it, you'll feel very uncomfortable any time that you do not have one available. Make sure that the helmet fits well and has some sort of a chin strap in place, so

it doesn't fly off your head if you go flying off the quad. Also, make sure that it is a CSA approved helmet. A hard hat is no good.

Don't carry passengers on the quad. There is a reason that there is only one seat on a quad. Having a passenger raises the center of gravity and decreases the stability of the machine. If a passenger suddenly shifts their weight when you are turning, it is very easy to flip the quad.

If you are going uphill, drive directly up or down the slope, not across the face. If you are driving across the slope, the quad can roll very easily. Experienced foremen often come to expect frequently rollovers as part and parcel of the job, and sometimes treat such incidents casually, but don't let yourself develop an attitude of indifference.

Those previous three guidelines are by far the most important things to consider when operating a quad. Here are just a couple more minor rules that should help you:

- Don't let ropes or bungees drag under the quad and get wrapped around the axles.
- Learn how to tighten your brakes, and do so on a regular (weekly) basis.
- Speeding is hard on the quad. If you're in BC, the quad may be fairly irrelevant in many cases, because the trucks can usually be used to deliver trees to caches. In muddier ground, especially in northern BC and Alberta, the quad is critical to the well-being of the crew. Slowing down minimizes wear and tear damage, and also reduces the risk of a bad rollover accident.
- Wear steel-toed boots for protection. Don't tuck your toes "in and down" when riding the quad. If you can keep your toes sloped upward, and on top of the foot rests, you are far less likely to have a stick flip up and crush your toes, or catch your foot and twist your ankle.

I presume that no planting companies use three wheeled ATV's (trikes) any more. If so, run away. Trikes are incredibly dangerous.

Perhaps the biggest safety issue with a quad is that too many people look at it as a toy, rather than as a valuable and dangerous piece of equipment. One planter working in BC in 2003 tried to jump a brook with a quad, and drowned. Our company has had a couple incidents in the past few years where inexperienced operators flipped a quad while going too fast for conditions and broke an arm or a leg. Finally, one of my old supervisors was doubling his girlfriend years ago, and flipped the quad. She hit her head (and was not wearing a helmet), and she ended up in a coma for some time before eventually recovering. These examples go to show just how easily accidents can happen, and how dangerous the machines really are. The quad is one of the best things to happen in planting in the past decade and a half, but it should always be treated with caution and respect.

Personal Protective Equipment

There are many types of personal protective equipment (PPE) available. During safety audits, planters may be asked to name some of the types of PPE required on the job, and to demonstrate that these items are actually being used when circumstances warrant. Here is a list, by no means exhaustive, of several common examples:

Boots: Many contracts stipulate that planters must wear CSA approved footwear that features steel toes and steel shanks (a strip of metal in the sole of the boot which protects the bottom of your foot from bruising). Good mountain boots or dedicated work boots are perfect, whereas light hiking boots and sneakers are unacceptable. On slippery logs, boots that have caulks (numerous metal spikes sticking out of the bottom of the boot) can help you maintain your footing more easily.

Bear Whistle: Many contracts require that all planters carry bear whistles with them at all times, to warn other planters when a bear is on the block. Please don't use your bear whistle for any other reason than a bear emergency. The best thing to do is to tie your whistle to your planting bags so that you don't lose it.

Hard Hat: Although a hard hat would certainly not save you if you were crushed by a large falling tree, there is no doubt that it could save you from a serious head injury if you get hit by a falling branch. The chances of that happening are slim (unless you are a cutter, in which case it happens regularly) and therefore hard hats are an annoyance to many planters, but the possibility of getting hit is still there. Hard hats may not be of much utility on a wide open cut block, but when working along wood-lines on windy days, they can be a good safeguard. Wearing a hardhat is not a common requirement in British Columbia, but it is fairly common in Alberta contracts. Hard hats are wisely mandatory when using a chain saw.

Gloves: Some seedlings are treated with a number of pesticides. Unfortunately, the pesticide residue on the trees can be quite harmful to human health. I have heard stories that medical authorities suggest that female planters and nursery workers refrain from having children for two to four years after heavy exposure to pesticides, however, I don't know if that is based on scientific studies or just fear-mongering. I would think that time frame might be a little excessive, but certainly, it would be better to be safe than sorry. Nurseries recommend that planters always wear gloves when handling seedlings that have been treated, and that as a second precaution you wash your hands before eating or smoking. The use of gloves is not mandatory, but of course, gloves also protect your hands from getting torn up by the ground. During extremely cold weather, they are also necessary to keep your fingers from freezing. A lightweight glove is all that is required for a significant amount of protection. Foremen and tree runners will also find gloves mandatory far more quickly than planters when the temperature starts to drop.

High-Visibility Vests: A hi-viz vest is good for foremen and checkers to wear, and also for first aid attendants, so they can be spotted on the block more readily. I see no reason for planters to wear hi-viz vests. These vests are also critical for all personnel who will be

working with helicopters on any chopper blocks. It is often quite difficult for pilots to spot specific individuals from the air, unless the ground staff are wearing the vests.

Safety Glasses: The use of safety glasses has always been a huge point of contention for planters. The glasses quickly become scratched and dirty, no matter how well they are cared for, and become more of a nuisance and potential hazard to planters then they are worth. On rainy days, the glasses become absolutely impossible to wear. People like myself can see the pros and cons of requiring that planters wear eye protection. On one hand, I paid five thousand dollars for laser eye surgery so I could see to plant better by not having to wear the glasses. On the other hand, I once ripped my cornea open on a sharp branch while planting, and I was very lucky that I didn't permanently damage my eyesight. Under the right conditions then, eye protection is a good risk minimization strategy, especially on overgrown blocks. Luckily, in many planting districts, the contractual requirement is for the planters to have eye protection available at all times. Whether or not the planter actually uses the protection is up to the individual. This approach is probably the most practical in the short term. Finally, planters working around helicopters should always wear eye protection. The amount of dust that the chopper can blow into your eyes is ridiculous.

Helmet: For anyone driving a quad, a helmet is a very necessary piece of PPE.

***Chaps*:** Kevlar chaps or full chain-saw pants are essential PPE for anyone using a chain saw. The Kevlar is used in bulletproof vests, and is so strong that when the fibres are woven into chain saw pants, they can usually tangle and completely stop a running saw before the chain is able to cut off a limb. Not always, but quite often.

Hearing Protectors: Foam insert hearing protectors or hard hat mounted swiveling ear muffs should be used when working around a helicopter or when using a chain saw.

Braces: Knee or wrist braces can be very useful PPE for anyone who suffers from chronic agitation of these joints.

Sunscreen: This item does not usually come to mind when talking about PPE, but it certainly qualifies. Use it to avoid nasty burns to exposed parts of the body.

Insect Repellant: Again, bug dope is not usually the first thing that comes to mind when talking about PPE, but it prevents some planters from getting bites that can cause serious itching, swelling, or allergic reactions.

Seat Belts: Since motor vehicle accidents pose the single greatest risk to planters, seat belts are a very obvious piece of PPE.

Sun Hat: A basic sunhat is useful PPE. Even though it offers no protection against contact with hard objects, it can minimize the chance of sunstroke or heat exhaustion.

Proper Clothing: Being prepared for all types of inclement weather is important. Having good rain gear and warm clothing available is critical in reducing discomfort and avoiding hypothermia.

Insect Stings

Insect stings, especially from bees, hornets, and wasps, can cause a number of people to suffer major allergic reactions, or anaphylactic shock. If you have never been stung before and are uncertain, let your first aid attendant and foreman know that there is a possibility that you could have a reaction if you are stung. Even if you have been stung before but did not experience any negative effects, a sting on the face or neck may cause problems in the future.

If you *do* have known problems with stings, you should carry antihistamines and/or a sting kit, commonly available in drugstores, depending on the severity of the problem. Antihistamines are an inexpensive basic precaution. The major problem with stings is that the chemicals received from the sting usually cause swelling. Since antihistamines reduce swelling, this solves part of the problem.

Above all, remain calm. The chemicals in a sting can increase anxiety and stress, which makes some people feel panicky, and this just aggravates the problem. If this is the case, sit down in the shade, try to relax, and let your foreman or first aid attendant know what you're doing. Remember that within about twenty minutes, the antihistamines will kick in and you will probably start to feel better.

Repetitive Strain Injuries (RSI's)

RSI stands for *Repetitive Strain Injury*. It is used as an umbrella term to refer to various kinds of work-related musculoskeletal injuries - for instance, carpal tunnel syndrome, tendonitis, tenosynovitis, bursitis, epicondylitis, and others. If you experience pain and loss of feeling in the hands, arms, or wrists, then you may have some type of RSI, especially if the symptoms are associated with repetitive tasks. Repetitive strain injuries may also be referred to as *cumulative trauma disorders* (CTDs). If your problem is localized, it is termed a "distinct RSI," whereas more general problems in an entire region of the body are referred to as diffuse RSI's. People suffering from diffuse RSI have multiple areas of diffuse pain in the muscles and other soft tissues. This condition is caused by nerve compression in areas where nerves or arteries are susceptible to pinching from joint movements, such as the hands, wrists, arms, shoulders and neck.

Some of the most common types of distinct RSI's include the following:

1. ***Carpal Tunnel Syndrome (CTS):*** This is the most widely recognized repetitive strain injury. Patients who suffer from carpal tunnel experience swelling of the membrane linings and surrounding tendons in the base of the palm. This inflammation compresses the nerve that supplies most of the feeling to the hand, causing numbness and aching in the inflamed area. The symptoms of carpal tunnel syndrome include pain or numbness in the wrist, thumb and first three fingers and loss of strength or dexterity in the hand. Some planters may experience carpel tunnel in their shovel hand.
2. ***Bursitis:*** Individuals diagnosed with bursitis experience inflammation of the bursa against the tendons attaching the muscles to the shoulder or elbow. The specific symptoms are joint pain and stiffness, and limited movement. This is another problem occasionally experienced by planters.
3. ***Epicondylitis:*** Epicondylitis is otherwise known as tennis elbow. This condition includes inflammation or a tear of the tendons that attach the muscles of the forearm to the elbow. The muscles that bend the wrist down start at the elbow, and therefore tennis elbow can have widespread consequences. Forceful and repeated bending of the wrist and fingers will cause tiny ruptures of the muscle and tendon around the "funny bone" on the inside of the elbow. Epicondylitis can produce painful symptoms and should be treated as soon as possible. This problem is relatively rare in planters.
4. ***Tendonitis:*** Tendonitis causes inflammation of the tendon, often in the wrist, forearms, elbow or shoulder.
5. ***Tenosynovitis:*** This injury causes swelling of the tendon in a finger or thumb, interrupting movement of the tendon.

A repetitive strain injury is a progressive condition that begins with mild pain or weariness of the hands, wrists and arms. Symptoms may start after periods of intense and prolonged activity, such as planting. In the beginning, RSI symptoms may only be noticeable during working hours. Eventually, they become persistent and very painful. Symptoms may include:
- Tenderness and pain in the neck, shoulder, upper back, upper arm, elbow, forearm, wrist or fingers.
- Swelling of hands or forearms.
- Tingling, numbness or loss of sensation in the hand or arm.
- Muscle spasms or muscle weakness (including loss of strength in a grip).
- Stabbing, dull, aching and intermittent pain in fingers, hands, wrists, elbows or arms.
- Unusual sensations that may include numbness, tingling, stiffness, very cold sensations, tremors and burning in fingers, hands, wrists, elbows or arms.
- Decreased sensitivity, motor control, endurance and strength in fingers, hands, wrists, elbows or arms.

Repetitive Strain Injuries more frequently happen on fast, easy ground, and the effects are magnified by cold conditions such as those experienced at the very start of your season. However, no matter where you are planting, or when, you should expect to have some negative effects from the hard work that you are doing. Repetitive Strain Injuries are a very contentious issue in the planting world. If everybody stopped planting to try to minimize aches & pains that arise from planting, very few trees would ever go in the ground. However, listen to your body. If your aches progress from casual soreness to any sort of sharp or intense pain, you should consult a first aid attendant immediately. Although you

don't make money if you're not planting, you need to balance your financial needs with preventing yourself from being seriously injured for the long term.

To minimize effects from RSI's, take it easy for the first couple of days of the season. I usually try to start my camp with half days on the first two days of the summer. Pushing yourself for extra production in the first week will only hurt your production in the long term, and most experienced planters don't truly start getting back "up to speed" until the third or fourth week of the season. Stretching in the morning can be beneficial. No matter what time of season, don't over-extend yourself. It is tough to restrain yourself on a good day and know that you are costing yourself a bit of money in the short term, but in the long term it may prevent a premature end to your season.

Getting Lost

If you get lost, stay put. Wandering aimlessly through the woods will only get you in deeper trouble. If you have flagging tape, and think you might know the way out, go ahead. Remember to mark your trail though, so you can return to your point of origin if it doesn't work out. The best bet is to avoid "shortcuts" through wooded areas – when using the washroom in the woods, don't go into the tree line very deeply.

If you do get lost, once people eventually notice that you are missing, a search party will start looking for you. If you keep moving around, it is harder to carry out an effective and comprehensive search. Be patient. It may take a while before you're found, but you *will* be found eventually. If you are bored while waiting, start thinking about ways to shelter yourself and keep warm in case you're still stuck at night, or if the weather gets really bad.

Sanitation in the Bush

When using the great outdoors as a toilet, always bury your mess afterwards. You can do it with a planting shovel, or you can even use your hands to scoop up a large quantity of moss, leaves, and dirt. In camp, or within a kilometer of camp, you should always use the outhouses. If you absolutely hate the outhouses, go for a long walk down the load (at least a kilometer) before you do your thing, then bury the mess. Don't get lost.

Propane Tanks

In BC especially, it seems that poorly secured propane tanks are a special pet peeve of WCB officers. The fines for having unsecured propane tanks in camp can actually be quite huge: $3500 for a first offence in BC. Here are the basic rules that you need to follow to keep from getting into trouble.

- Make sure that all tanks are dug into the ground at least 18 inches. If you are on a hard-packed gravel or slate base, this is going to be problematic. In that case, it might be more practical to set the tank on the ground and import half a pickup load of dirt from somewhere down the road, and pack it around the base of the tank, to achieve the same end result.
- The propane tanks should be tied to a strong support, even if they are dug in well enough that they cannot tip over.
- Empty tanks in camp should still be tied securely to trees, just to be safe. The rules don't say, "tanks with propane in them should be secured," they say, "propane tanks." A WCB officer could, in theory, write you up for having unsecured tanks if he is in a bad mood, even if they are empty. Dot the I's and cross the T's. Being thorough and cautious never hurt a person. Besides, a propane tank lying on the ground is just an invitation to be run over by a careless driver, even if you think it is out of the way.
- Whether empty or full, a maximum of five propane tanks are permitted in or on any one vehicle at any one time unless properly treated and handled as dangerous goods. If you have more than five tanks, even small ones, the vehicle must be driven by a person with a valid Transportation of Dangerous Goods ticket, and the load must be properly placarded and described on the manifest.
- If you are transporting more than one propane tank, or a single tank that is larger than a standard 10-pound BBQ tank, and your vehicle is also carrying fuel in external containers other than just a jerry-can, you are considered to be carrying a mixed load. You will need to follow Transportation of Dangerous Goods regulations for this mixed load. It is usually easier just to separate the propane tanks and the fuel barrels so they are being transported in separate vehicles.
- Propane tanks should never be transported or stored in an enclosed space, such as the back of a FIST or inside a reefer or trailer. Even transporting tanks in the back of a covered truck or canopy truck which has a rear opening is dangerous, because leaking gas can still accumulate in sufficient quantities to explode if ignited with a stray spark. Always transport propane tanks standing upright, and in an open back vehicle.
- Secure tanks tightly. I have often seen trucks drive off with tanks swaying back and forth several inches or more. Rope rarely works. The best approach is a couple of come-along straps, pulled tight, so the tanks can barely even move a few millimeters.
- In camp, if you smell leaking propane in the cook tent, go outside and turn off the source of the propane immediately (turn off the shut-off value of the tanks themselves). Allow the accumulation of gas to dissipate before re-entering the area and trying to relight the pilot light. When you relight the pilot, perform an immediate inspection to see if a leak has developed somewhere, or if the pilot simply blew out. It is good to have someone helping you who is standing by, ready to turn off the tanks again immediately. This is therefore a good job for two people.
- If you discover a propane leak, get it examined by a person who is competent in working with propane fittings. Propane lines are a dangerous area, not suitable for a MacGuyver sort of repair job.

Danger Trees (Snags)

A danger tree, more commonly referred to as a snag, is any unstable and potentially dangerous tree that is more than five meters (between fifteen and twenty feet) in height. The most obvious danger trees include trees that are still upright but dead, as evidenced by lack of leaves in the early stages and obvious rotting later on (if the tree remains upright that long). Trees that are leaning somewhat, but which are still alive and with health root systems, should not usually be considered to be danger trees, unless there has recently been a significant environmental change nearby which could have weakened the tree's root system. Also, a tree that has started to fall but which is securely hung up in another health tree nearby, to the point whereby the pair of trees can be assessed to cause no significant safety hazard, will not be considered to be a snag.

Planters should not set up tents under or near snags in camp. There are two ways of dealing with this issue: either by getting a certified snag faller to go into the area with a chain and eliminate the snags, or by putting the tents up somewhere else. Of course, it is easier to drop the snags before the tents are set up, to avoid potential damage. If a tree falls on you during the night while you are sleeping, it will crush you, so don't treat this subject too lightly. Thinking about this issue at three in the morning during a heavy storm, when you hear weak trees crashing in the forest all around you, is probably too late. Make sure that camp structures such as the showers and outhouses are not set up near snags either.

On the block, you should not be planting under snags. The "safe distance" is often designated as any distance more than twice the height of the snag, away from the base of the tree. This might seem a bit excessive, but it is that conservative because falling trees sometimes shatter and throw debris, or will hit another tree lying on the ground nearby and displace it somewhat. On the block, you are most likely to run into snags along the woodline, but there will also be frequent occasions where there are snags right on the block in the pieces that you are planting. Individual "residual" trees that have been left on a block after harvest are deceptively dangerous too, even though they may look quite stable. Skidders may have run over the ground beside such trees, weakening their root systems, and without other nearby trees to help absorb the force of gusts of wind, they can be quite unstable. My crew was planting on a large block for several days in 2004 when a front of wind suddenly blew across the block and simultaneously toppled about forty very large live cottonwoods among the planters.

The best way to deal with snags on the block is to send a snag faller in before the crew arrives, to eliminate the problem. If this is not possible, or to deal with danger trees that the snag faller has missed, the planters can either establish a "no work zone" in a large circle around the base of the tree, which should be indicated with pieces of flagging tape to identify it as a danger zone, or the area should be planted using the "supervised plant" technique. The technique involves two planters: one stands guard watching the danger tree, ready to yell a warning, while the other planter quickly plants trees throughout the danger zone. I prefer this approach to establishing a no-work zone, because it does not leave an

unplanted area that has to be dealt with later. Be prepared to explain to any WCB inspectors how you managed to safely plant any such danger zones near snags on your piece.

There is a provincial course offered in BC which trains a person to be a "certified danger tree assessor." When working in BC, it is very advantageous to have one person in your camp who has this certification. It is a two-day course, and is actually quite involved.

Fire Procedures

In case of a fire, first you should assess the situation, size, and conditions. Report the fire by radio, cell phone, or satellite phone – in Alberta you need to call 310-FIRE, and in BC the number is 1-800-663-5555. The person who takes your call will probably ask you a lot of questions, including the following:

- What is your exact location? Latitude & longitude is useful, but so is your position relative to a nearby major logging road or highway.
- How long has the fire been burning? Do you know what might have started the fire?
- How big is the fire? Do you know or can you estimate how fast it is spreading?
- What kind of slope is the fire on?
- What are the local weather conditions?
- What kind of fuel is burning (ie. grass, brush, softwoods, hardwoods, mixedwood, dead stands, live stands)?
- Can you see flames or just smoke? Are the flames on the ground, or in the tree tops, or both?
- What colour is the smoke? How thick is it, and is it rising rapidly or just drifting?
- Are you in a safe position to observe the fire without risking having your escape routes cut off?
- How close to the nearest dirt road is the fire?
- How close is the nearest water source that you are aware of, and what type of water source is it?
- How many people are on the scene? Are any of them trained professional firefighters? Are there any people currently fighting the fire?
- What types of fire-fighting equipment is available on the scene, both in terms of hand-tools and major equipment?
- Are any lives threatened? Is any property currently threatened?
- What is your name and phone number?

After you have reported the fire, do an initial attack if possible to contain or limit the fire. Stay at the fire until you are released by a fire fighting official, unless personal safety is threatened.

If you end up actually working on a fire line, you will hopefully have been properly trained by taking the one-day or two-day S100 Fire Suppression training course. That course will teach you a lot about the conditions necessary to support wildfires, how to best reduce potential property and personnel damage from fires, and how to actively fight wildfires in a safe manner. This safety chapter is certainly not an effective substitute for the S-100 course, but at least you can start by learning these very basic safety tips:

- Fire travels more quickly uphill. If you are trying to run from a wildfire, keep this fact in mind (depending on escape routes).
- Fire can travel far more quickly than you can run, especially in a "crown" fire in which the fire travels along the tops of trees rather than along the ground.
- If you find yourself in a "drop zone" such that you might be about to be hit by a load from a water bomber, try to lay down behind a strong obstacle such as a solid tree, on your stomach, and face into the direction that the water or foam will come from.
- No timber or personal property is as valuable as your life. Don't take unnecessary risks.

If you do become involved in fighting a fire, remember that it can be very dangerous. In a study of forest firefighters in the US in the 1990's, a very large number of fatalities were examined. It was found that the causes for various fatalities could be broken down as follows:

- Burnover, or being overtaken by the fire – 29%.
- Aircraft accidents – 23%.
- Heart attacks – 21%.
- Vehicle accidents – 19%.
- Falling snags & miscellaneous (drowning, training, etc.) – 8%.

In terms of more general fire control issues, remember the following guidelines:

- Do not discard cigarette butts on the ground, or throw them out the window.
- Don't leave glass bottles on the block, and if you come across one, throw it in your planting bags and take it out as garbage.
- Every vehicle should have a working and fully-charged fire extinguisher.
- Do not smoke in the woods or on the block; smoke on dirt roadways.
- Do not smoke when handling fuel, or within 5 meters of any fuel depot or storage containers.
- Be careful when driving ATV's through dry, grassy areas, as the hot exhaust pipe or underside of the ATV can start a fire.
- Do not light campfires in camp during fire ban periods, and don't have campfires unless you have permission from the licensee.
- Do not light fires on the block, ever.

Safety Bulletin Board

Every camp needs to have a bulletin board hanging in a prominent location for the purpose of providing safety, health, and reference information to employees working in the camp. A good location for the bulletin board would be in the mess tent where planters regularly hang out. The first aid tent probably isn't the best location since that tent should not be used as a general lounge area, therefore, planters are less likely to casually read information on the board.

There are a large number of sheets that should be posted on your camp's bulletin board. At a minimum, the following information should be available:

- Your company's Health and Safety Policy.
- The BC government's "camp standards" requirements.
- WHMIS Material Safety Data Sheets (MSDS) for dangerous products in camp.
- Seedling pesticide data sheets.
- The camp and block Emergency Response Plan (ERP).
- Notes from specific weekly safety meetings.
- General safety information (ie. this chapter).
- "Bear Aware" brochures.
- A list of all personnel in camp, along with training or first aid courses possessed by each person.
- Emergency communication information, including radio channels in use in the area, numbers to call for ambulance/fire/hospital/helicopter, your own company's contact info, the local forest service, etc.
- A map of the area showing where the crews are working, and another showing how to get from camp to the nearest hospital.
- A copy of the provincial health and safety regulations for the province you are working in.

Some of these items may be extensive or 'weighty' enough in and of themselves to warrant being kept in binders on a table by the bulletin board. You'll also note that there is a lot of information in the above list. I've found that it is useful to have a bulletin board the size of a sheet of plywood, to be able to accommodate everything. I've even seen camps with two such large boards – one for the safety information and one for the maps.

Running on the Block

Avoid running on the block or through slash or bushes, as it can increase your chance of injury. That's all.

Firearms

Planting camps will frequently have a designated firearm officer, whose duty it is to have and maintain a working rifle in a secure location in camp, and to follow all applicable federal and provincial regulations. In an emergency, such as a bear control problem, this person may be called upon for assistance in dealing with the problem animal (although all other options should be explored first, whenever possible).

The *Firearms Act* and its related regulations govern the possession, transport, use and storage of firearms in Canada.

In terms of meeting the appropriate personal licensing requirements, businesses and individuals need a valid firearms license to be able to possess (own, borrow or store) a firearm in Canada. They must keep their license up to date and renew it before the expiry date if they possess firearms. Individuals must be at least 18 years old to get a license that will allow them to own or to acquire a firearm. The Possession and Acquisition License (PAL) is the only license now available to new applicants over 18 years old. Applicants for a PAL or a Minors' License must meet specific training requirements in the safe use and handling of a firearm. All license applicants must pass a public-safety check. A computer link between the Canadian Firearms Registration System (CFRS) and the national police database allows for continuous checks of license holders.

In terms of meeting the appropriate requirements for registering a specific gun, you need to be aware that all firearms in Canada must have a valid Canadian registration certificate. To be able to register a firearm, an applicant must be at least 18 years old and have a valid firearms license allowing them to possess that class of firearm. A registration certificate issued under the *Firearms Act* does not have to be renewed unless the firearm is modified in a way that changes its class. When a firearm changes ownership, it will be registered to the new owner as part of transfer process. When someone borrows a firearm, they must also borrow the registration certificate for that firearm.

As mentioned above, in order to obtain a PAL, you must first successfully complete the Canadian Firearm Safety Course (CFSC). This course covers topics such as the evolution of firearms, major parts, types and actions; basic firearms safety practices; ammunition; operating firearm actions; safe handling and carry procedures; firing techniques and procedures; care of non-restricted firearms; responsibilities of the firearms owner/user; and safe storage, display, transportation and handling of non-restricted firearms. To find out where a CFSC course is being offered near you, contact your provincial contact office. You can find a list of these offices on the CFC website. This course has not changed since January 1st, 1994, to the best of my knowledge, and anyone with certification in any of the provincial CFSC courses since that date should still be considered to have a valid certification.

If anyone in the camp is in possession of a firearm, it should be reported to the camp's supervisor. If you are considering bringing a firearm to camp, you should contact your company first to see what they have to say about the situation. Although it is nice to

have one rifle in camp, with someone who is properly licensed and who can secure it properly, most companies do not encourage going above and beyond that minimum standard. The best method for dealing with animal control problems is not through the use of firearms, but rather by keeping a clean campsite, following good wildlife interaction guidelines, and trying to minimize the chance of animal problems in a proactive manner.

Transportation of Dangerous Goods

The transportation of any dangerous goods within Canada, whether it is by rail, water, air, or highway, is governed by the *Transportation of Dangerous Goods Act* of 1992. Transportation of Dangerous Goods (TDG) regulations are similar from province to province, and establish the safety requirements that you must follow when transporting such materials. Nine separate classes of dangerous goods have been identified under these regulations: explosives, gases, flammable liquids, flammable solids, oxidizing substances and peroxides, poisonous and infectious materials, radioactive materials, corrosives, and a class for miscellaneous dangerous goods (including toxic wastes).

Under the TDG system, diamond shaped placards and labels are used to identify these goods specifically. Different colours and symbols are used to help identify materials more quickly and specifically. For instance, flammable substances have a flame symbol, and poisons have a skull & crossbones symbol.

As I understand the regulations, the main things that tree planters have to worry about are the transportation of Gasoline (UN 1203), Diesel (UN 1202), and Propane (UN 1978). In general, the following list of points should be of some assistance in determining when a placard & manifest system (explained below) will need to be used:

- Tidy tanks containing either diesel or gasoline, in quantities of up to 450 liters, are exempt from needing placards.
- If you have a mixed load, with any other dangerous goods on the same vehicle as the above-mentioned tanks, you will need placards.
- If you have propane, you are allowed to have up to five tanks on a vehicle, of up to 100 pounds each, and you still do not need placards.
- If you have six or more propane tanks of any size, you need placards.
- If you are mixing various types of fuel on a load, keep it under 450 liters so that you are exempt from needing placards.
- There may have been an exemption in the past for a straight fuel load of up to 2000 liters if the load was all gasoline or all diesel or all jet fuel, whereby if the load was divided into a number of secure containers, none of which exceeded 450 liters in volume, placards were not needed. This ruling is still unclear to me at the present time.

Very simply put, to make sure that you're not breaking the law, make sure that you never carry more than five propane tanks in the same vehicle, and make sure that fuel containers (diesel barrels, gasoline barrels, jerry cans) are carried in separate vehicles. Also, keep the labeling requirements in mind and make sure that all your containers, whether they are jerry cans or barrels or compressed gasoline tanks, have both a visible WHMIS label and a visible TDG label. If you exceed minimum quantities such that you need to put a placard system in place, you are making your own job a lot more difficult. In that case, you need to have visible placards on all four sides of the vehicles, have a properly filled out manifest within reach of the driver or left visibly on the driver's seat of the vehicle at all times, have a 24-hour emergency contact number available for further information, have a driver who has a TDG certificate. It is far easier to be smart about how you pack your loads than to try to meet those regulations properly.

The TDG regulations are pretty complex. Luckily, the above summary should provide most tree planters with the information that they need to know. If you have other dangerous goods that must be transported, such as herbicides and so on, you should investigate the TDG requirements in more depth. The federal government has a very comprehensive website available to cover the Transportation of Dangerous Goods act and requirements in very great depth: http://www.tc.gc.ca/tdg/menu.htm

Winches

Winch cables can be very dangerous. All bystanders should stand back at least 1.5 times the total length of the extended cable from each truck. A cable can be under more than 10,000 pounds of pressure, and if it breaks, the cable ends can snap like a whip and go through the windshield of a vehicle, or seriously injure someone. Only persons trained in the use of a winch should operate them.

Despite being told repeatedly that winch cables under strain are dangerous, most planters will usually give a blank look and step back about six feet, and continue to watch the excitement from well within the danger zone. It is the responsibility of the person operating the winch to take a moment before increasing pressure, and look round carefully to make sure that all bystanders are out of harm's way. You will very frequently have to halt, get out of the truck, and yell at people to "move back, wayyyy back …"

Chain Saws

If you are planning to use a chain saw, there is absolutely no substitute for taking a chain saw safety course first. These machines can be very dangerous in untrained hands, to bystanders and especially to the user. If you are falling trees in the workplace in British Columbia (either in camp or on the blocks), then you should definitely be in possession of valid chain saw safety training certification.

The following is a quick list of safety tips for trained chain saw users to use as a refresher guide:

- Always wear adequate PPE, including chain saw pants, proper protective boots, hard hat, eye protection, hearing protection, and gloves.
- Read the owners' manual before using any particular saw, so that you understand its particular characteristics.
- Always start a saw in a safe position, i.e. on the ground with the chain brake engaged, rather than while you are holding the saw in the air.
- Never stand directly behind the saw while cutting. Always hold the saw in a manner such that any kickback is directed at the side of your body.
- Always use two hands on a chain saw, and have a firm grip.
- Do not operate the saw above waist level. Your arms should not have to work to lift the saw in the air, as that reduces your control over the saw.
- Ensure that you have very firm footing.
- If cutting a standing tree, always make sure that you have two "escape routes" first in case the tree starts to fall toward you.
- Watch the tip of the blade, and avoid kick-back situations. "Drilling" and cutting with the tip is extremely dangerous.
- If the saw is hot, allow it to cool down for a couple minutes before refueling. Take the time to grab a quick drink of water.
- Make sure that the cap is secured tightly after refueling, so fuel cannot leak onto the saw or the operator.
- If you spill fuel onto the motor, clean it off before starting the saw.
- Always use the proper recommended fuel mix, and store fuel in a proper container.
- Always have a first aid kit and fire extinguisher available for immediate use.

First Aid Equipment

Within BC, a number of regulations have been put into place to mandate what type of first aid equipment is available to employees on the work site. Simply put, every vehicle must contain a "level one" first aid kit. The kitchen in camp must contain a "level one" first aid kit. The Emergency Transport Vehicle (ETV), when the camp is big enough to require one, must usually contain a "level three" first aid kit. Depending on the number of people working in the camp, the camp might require a first aid room, and will require various levels of equipment. Alberta regulations are less defined, but the safe way to approach things is to make sure that when you are working in Alberta, you meet the same minimum requirements that you would in British Columbia.

In terms of training, most camps (again, depending on size) require one or more OFA (Occupational First Aid) attendants to be working and available to the crews at all times. Tree planting and silviculture (excluding logging) workers fall into the "moderate risk" category. Usually, any crew or group with fifteen or more people needs someone available with a "level three" OFA certification. There are a number of requirements in place, such as the maximum permitted response time of the first aid attendant (which affects effective proximity), and minimum transportation requirements. In addition to the head

first aid attendants, it is good for each small crew to have someone that has a "level one" first aid certification.

A very complete and exhaustive set of guidelines and regulations can be found at: http://regulation.healthandsafetycentre.org/s/GuidelinePart3.asp#SectionNumber:G3.12

WHMIS

WHMIS is the abbreviation for the Workplace Hazardous Materials Information System. It is a national system to help identify and ensure proper use of hazardous chemicals. WHMIS took several years to develop, and was put into place by a number of groups representing labour, industry, and government, which helps to explain why it is useful and widely accepted.

WHMIS legislation states that workers must be informed about all hazardous materials in the workplace, and receive appropriate training so they can work safely. All suppliers are required to label and prepare a Material Safety Data Sheets (MSDS) for every product that they make, import, or package. The buyers and users of these controlled products must then make sure that these products are correctly labeled and that MSDS information is readily available to anyone who might come into contact with the hazardous materials. Employers must educate workers about the contents and significance of WHMIS labels and MSDS information, and instruct them how to work safely with hazardous materials. The ultimate goal is to create a safer workplace.

Health Canada is the ultimate overseer of WHMIS regulation in Canada. The federal *Hazardous Products Act* and the *Controlled Products Regulations* specify how everything is to be standardized. Within each province and territory, the respective Occupational Health and Safety departments deal with enforcement. It is important to remember that WHMIS legislation itself does not limit or prohibit use of hazardous materials. WHMIS is simply a system to communicate information about hazardous materials, and there are other regulations in place which deal with how hazardous materials are to be handled.

A wide variety of products that are commonly found in planting camps will fall under WHMIS regulations. I've prepared a list of the broad categories here, along with several relevant examples from each category. You may note that some products will fall into several categories:

- Compressed Gases: propane tanks, oxygen tanks in the first aid tent.
- Flammable and Combustive Material: gasoline, diesel.
- Oxidizing Material: bleach, hydrogen peroxide, nitric acid (used in some fertilizers).
- Poisonous and Infectious Material: rat poison (probably not present in planting camps).
- Corrosive Material: oven cleaner.

- Dangerously Reactive Material: explosives (hopefully not present in planting camps).

The following information must be contained on a WHMIS label: the product identifier, the supplier identifier, a statement to the effect that MSDS information is available, and the hazard symbol(s). If the container has a capacity of more than 100 milliliters, the WHMIS label must also identify risk phrases, precautionary statements and first aid measures. As required by section 29 of the *Controlled Products Regulations,* where new information becomes available in respect of a controlled product or an ingredient of a controlled product, the supplier must revise the label. For planting companies, it is probably a good idea to update MSDS information on an annual basis every winter or spring, before copies are made to be sent out to planting camps. MSDS sheets are commonly available on the internet if you can't find them anywhere else. The best place to start your search is at www.msds.com – this site requires that you register, but registration is free, and you can download and print MSDS sheets for free once you have registered.

Rolligons

Rolligons, skidders, and tracked machines are sometimes used on contracts which feature poor access. When these machines are used, about half of the time they are used solely to transport trees, and the other half of the time they are used both for the transportation of trees and people.

Rolligons can be very dangerous machines. The biggest problem with them is the poor visibility that the driver has. If a rolligon is running, the workers around it should be assisting the driver at all times in letting him know what is happening behind the machine. Employees should not just blindly jump behind a running machine without letting the driver know of their intentions first.

A second problem involved with rolligons is seating. Rolligons are not necessarily designed for carrying passengers. Some can be legally fitted with seats and seat belts, but workers should not just ride indiscriminately on the machines, standing precariously above the tires, holding on for dear life, as I have seen on occasions in the past. I have not had the displeasure of working with rolligons in my camp for about a decade, so I am not necessarily that current on regulations or current industry practices with respect to carrying passengers.

A final thing to watch for is "pinch points." Many rolligons can really swivel around, as their bodies are designed to be very flexible for travel over very difficult terrain. Be careful never to place your limbs or torso near any part of the machine that can flex or swivel significantly, in case you expose yourself to a potential crush injury.

The "Right to Refuse Unsafe Work"

Not only does each and every employee have the right to refuse unsafe work, the employee has the responsibility to do so. You cannot, for example, say "I am going to operate this chain saw without any protective equipment. I know it is not safe, but I am accepting the risk." Workers are simply not permitted to work in conditions which are known to be unnecessarily dangerous. For the majority of situations involving workplace hazards, standardized procedures have probably already been put into place to guide the worker in how to effectively deal with the hazards. In such cases, the onus is on the worker to adhere to such guidelines as prescribed by your company, unless the guidelines should be considered to be insufficient considering the level of danger of the hazard. If the hazard represents a new situation where the worker must make a judgment call about how to act appropriately, the onus is for the worker to use caution and common sense.

If you believe that a situation is unsafe, you may bring it to the attention of your supervisor, whether that is your foreman or camp supervisor. That person should assess the hazard immediately, and advise the worker how to proceed. If there is a disagreement following the supervisor's assessment, the worker can ask for another assessment which involves the supervisor and a member of the camp's joint safety committee. If there is still a disagreement about how to proceed after this assessment, a WCB officer should be called to the scene. No worker may be forced to work under what he or she deems to be unsafe conditions.

Note that the "refusal of unsafe work" is not a blanket excuse for a worker to get out of doing something that he or she does not want to do. If the job classification assumes that a worker would regularly have to deal with a specific type of hazard, and proscribes methods for completing the task safely, then the worker is obliged to carry on work. For instance, a worker cannot state that working in the rain is something that he or she considers to be unsafe, and refuse to work. It is a common practice for tree planters to have to work in extreme weather conditions, and your company will have advised the worker as to proper PPE (appropriate clothing) that should be worn when working in such conditions. A "frivolous" refusal to work can mean that the employee is subject to disciplinary measures. Use common sense. While refusing to work in the rain would be considered to be inappropriate, a temporary refusal to work based upon the fact that there are lightning strikes on the block would be considered to be acceptable and perhaps even expected.

Helicopters

It cannot be overemphasized how dangerous helicopters can be. For a proper understanding of how helicopters are used in the planting industry, see the complete chapter found at: http://www.replant.ca/reference/ch18/chapter18.html

For now, let's just cover some of the basics of helicopter safety in point form. Your pilot will hold a crew safety meeting before anyone sets foot in the machine, so you'll get more comprehensive information at that time:

- Never step near the rear of the machine. The tail rotor cannot be seen when the machine is running, but it is spinning at thousands of revolutions per minute. If you walk into the tail rotor, you will die.
- Landing Zones that the helicopter may use need to be completely cleared of debris. It will be impossible to eliminate sticks and dirt on the blocks, but you absolutely must secure all tarps and tree boxes and similar items. Use overkill: boxes with half a dozen logs on them have still been known to blown away.
- More importantly, loose plastic pieces of flagging tape and bundle wrappers must always be avoided and eliminated. When bagging up, secure plastic wrappers in a closed box that cannot blow open, or in a closed silvi insert bag. If a tiny bundle wrapper ever blew up into the machines rotors, you are in for huge problems. Bundle wrappers are incredibly dangerous.
- When approaching the machine, always do so from the front or from the forward side, and do not approach until the pilot gives you a visible nod.
- Crouch when approaching the machine, as the overhead main rotor blade can actually dip quite low while it is spinning around, and never approach the machine from a "high" point on the ground.
- Do not wear a hat when getting into or out of a helicopter, unless is it the type that is fastened by a chin strap. Always carry gear low to the ground. Never carry a shovel over your shoulder, or wear a tall backpack.
- Always wear a seatbelt while in the machine. Do not remove it until the pilot has given you permission to, even if you think he is almost settled on the ground.
- Know where the "black box" or emergency locator is located, and how to turn it on in the event of a crash.
- Know where the fire extinguisher and first aid kits are located in the machine.
- If you are a designated load assistant, dealing with cargo nets and slings, find out how the pilot prefers to have both full and empty nets attached to the machine. Always wear safety glasses and a high-viz vest while working under the machine. Hearing protection is also useful.
- *Never ever* carry bear mace inside the cabin of a helicopter. In fact, do not bring any hazardous materials in the cabin of the machine unless the pilot gives you explicit permission beforehand.

It is easy for rookies to make mistakes when they are first learning about working around helicopters and it is equally easy for experienced planters to make mistakes because they become complacent around the machines and fail to pay adequate attention. Helicopters are very dangerous and expensive machines, so make sure you are at the "top of your game" when working around them.

http://encarta.msn.com/encyclopedia_761563114/Lichen.html
Jonathan Clark (Scooter), author.