



EXTREME ADAPTABILITY

CHILLING

WITH CKHH

For employees at Husky Energy and Park’N Fly in Canada and their CKHH cousins at 3 Sweden, extreme cold is just part of the job. But they show up prepared, with the equipment and training needed to survive bears, ‘growlers’ and falling icicles.



When roads are frozen, the skies are clear. Helicopters are a wintertime must for **3** Sweden.

If you were told at the job interview, that for a few months of the year, you would be expected to go out and get your job done in sub-zero temperatures, would you take the job? Don't worry - you get a hat. You'll be fine.

In fact, employees of the CKHH family get a lot more than a hat. There is special training, special equipment, extraordinary modes of transport and custom-designed infrastructure that not only makes business possible, but also protects staff who put their hands up for cold weather duty. Recruits in these countries have normally - but not always - grown up with the cold, and living with it is in their blood.

But there is a huge difference between living in a Toronto or Stockholm suburb

CKHH's coolest employees show up ready to get the job done under the most extreme conditions.

and surviving a trip to the local Tim Hortons doughnut shop or Ikea warehouse and working on a North Sea supply ship dodging icebergs, or climbing ice-shrouded cell phone tower masts near the Kebnekaise mountain. CKHH's coolest employees show up ready to get the job done under the most extreme conditions.

"THERE IS NO BAD WEATHER, ONLY BAD CLOTHES"

So goes an old Swedish saying. According to Maria Jonsson, Head of Networks, **3** Sweden, staying indoors for the winter is not an option for the Swedes. **3** Sweden field technicians serving base stations, according to Ms Jonsson, "always need to be ready to go out and secure service for our customers," and ensure Swedes are connected everywhere, all the time. Modern Swedes, in contrast to their forebears, have access to weather apps - with the data coming via the **3** network - and see them as a daily necessity.

In northern climes, spending extended periods outdoors is not taken lightly. People from these countries are surprised that terms like 'frostbite' have to be explained to people from the tropics, as it is second nature to them. With this condition, your extremities (fingers, toes, tip of the nose or ears) can literally freeze, resulting in masses of blackened dead cells that normally require amputation. In extreme cases, it can proceed up the limbs, proving fatal.

Swedes know how to dress for the weather, but gloves present a special difficulty as keeping hands warm yet unencumbered enough to do technical work is always a challenge. The same is true for the Swedes' cold-weather compatriots in Canada. Park'N Fly, Inc, the airport parking service in 12 locations serving seven airports, provides cold weather clothing for a wide range of employees who have principally outdoor duties to deal with in winter, such as snow removal teams. Canadians have a range of vocabulary for cold weather wear that they don't even realise is unknown to the rest of the world. Ask any non-Canadian what a toque (or tuque) is and you'll get a blank look (it's a woollen hat, often with a pom-pom on top).

Husky Energy Inc deals with some of the most extreme temperatures with operations in Canada's Far North, including the Arctic Ocean and North Sea. Temperatures as low as -40°C (which is also -40°F, the only place the two are the same on the thermometer) are not uncommon in the winter. This effective temperature is even lower when the wind chill factor is considered. More expensive full thermal, cold winter wear is provided for all employees. Boots must not be just warm, but are specified for safe working at -40°C. *Sphere 39* covered some of the special uniforms made for workers on offshore platforms - see QR code below. They include flight suits with cold weather protection for travelling to and from the SeaRose FPSO by helicopter in case a trip over water goes awry. Full immersion suits will hopefully never be used, as they would only be required in the event of a full evacuation into the icy North Atlantic waters.



These flight suits offer more than stylish orange — they're designed for safe passage by helicopter over chilly Arctic seas.



You're going to need more than a spare credit card to dig these cars out in the Canadian winter.

TAKE CARE OF YOUR PEOPLE

Enduring the cold with frosty bravado is not seen as a virtue. All three companies recognise that cold weather environments take a toll on people undertaking work in these conditions, causing higher levels of fatigue. Work schedules allow for complex tasks to take longer in cold conditions. Adherence is rigorous. "Strict policies and procedures focused on reducing the risk of injury, slips and/or falls attributed to snow or ice exist," explains Frank De Cesare, Vice President of Marketing and Sales, Park'N Fly.

For example, Park'N Fly knows that demand goes up for valet service in the winter as people prefer not to dig their own cars out from under perhaps weeks of persistent snowfall. "Park'N Fly is there to help and ensure the customer is taken care of," explains Mr De Cesare. While also protecting employees, that is.

Staff do the heavy lifting and need regular rest to ensure safety. They also lay salt - over 900 tonnes of it at the Toronto operations alone each winter - and provide electricity for clients who pay to have their car plugged into a heater to protect the battery during cold spells.

Husky Energy has similar "Fatigue management" and "Cold weather management" systems in place to ensure heavy indoor rotation for those working outdoors in especially extreme conditions. It also ensures that its systems and equipment are used by its contractors, not just its direct employees.

Salt: over 900 tons of it at the Park'N Fly Toronto operations alone each winter.

3 Sweden has another challenge. Much of their technical work is done high up at the top of a cell phone tower. All year round, for safety reasons, the company forbids climbing in the dark. However, in the winter, the days are very short. From November to February, there may only be a handful of working hours each day. Combined with the extra time taken to get to inaccessible facilities in the snow and ice and the extra time taken to fix problems, winter is a special challenge. Accordingly, much of the routine maintenance work is done during the extra-long summer days, with winter reserved for keeping the service in top form.

BEWARE FALLING ICE

Those employees face other challenges approaching cell phone towers and working at height in the winter, including the threat of killer icicles.

While this may seem preposterous to some, a sharp, heavy knife plunging down from a great height is no joke. In the particularly harsh winter of 2010, five people were killed and 150 were injured in St Petersburg, Russia. The danger is very real, especially when the thaw comes at the end of a long winter, and those climbing tall structures are at high risk. **3** Sweden mounts special ice-protection structures on all link antennas to prevent damage. Especially tall masts will have special armour plating to protect climbers and parking spots close to the tower (to shorten equipment transport) with extra armour plating provided to protect parked cars and snowmobiles and their passengers.

The equipment itself is normally manufactured for all weather conditions. Only rarely has **3** Sweden had to replace equipment that wasn't up to the cold. However, replacing faulty equipment can be problematic if persistent ice has formed

Whether it's rain, sleet or snow, nothing will keep **3** Sweden from their rounds!





“3 Sweden field technicians serving base stations always need to be ready to go out and secure service for our customers.”

Maria Jonsson
Head of Networks
3 Sweden

Frozen doesn't mean immobile. Falling icicle is a mortal threat.

over a mast. The only solution is to mount a second unit alongside the faulty one and wait until the spring thaw to swap the original out.

In addition to ice on the masts, ground frost in the winter prevents digging operations, especially in the north. Often cable is laid on the ground and left there until summer. The same goes for building access roads into inaccessible areas.

ALWAYS COME WITH THE RIGHT GEAR

Husky Energy also deploys special equipment for working in the north. Keeping drilling equipment working in extreme cold means that all equipment is 'winterised' with things like trace wires that carry a current to generate heat. Much of the equipment generates its own heat – as long as it keeps operating – and can be controlled remotely.

Trevor Pritchard is Husky Energy's Senior Vice President, Process and Occupational Safety. He was impressed when he arrived in the north and discovered that "trucks up in the Northwest Territories have a small engine built into the hood of the vehicle and connected to the main engine cooling system. This generates enough heat to keep the cooling system from freezing and also allows the cab heater to work for short durations." This is important because, "Otherwise you need an electrical heater and electrical supply, or you need to leave the engine idling ... Either way, fuel costs go up when working in the cold," he explains.

HERE THERE BE ICEBERGS

Other special vehicles include aircraft whose only job is to look for icebergs that could pose a risk to offshore drilling operations. February to July is peak season, as warming weather causes ice to break off of the main

Strict protocols exist for dangerous, exhausting conditions in order to protect 3 Sweden's telecom professionals.



Arctic ice mass or glaciers. As the icebergs float south, they could take months to melt. Special aircraft are dedicated to locating and assessing the threat of bigger or smaller icebergs. Icebergs are the big, visible ice masses, but medium-sized 'bergy bits' and even smaller, less visible 'growlers' also pose a threat.

Once an ice mass is identified as a risk, other supply vessels will be recruited to divert the ice from its trajectory. This can be done using ropes, nets and water cannons, literally towing or blasting errant ice. However, if ice density becomes a real problem, drilling rigs can evacuate the area and the supply ships then all focus on protecting the SeaRose, the centre of the White Rose oil and gas field operation, much like chess pieces forming ranks to protect the king.



Remember, it's what lies beneath that you need to watch out for. Husky Energy patrols are on the lookout!

Those ships cost more than normal ships operating in more temperate climates as they have to be made of special cold-tolerant steel. There is almost never a break on costs when working in northern climes. The one exception is **3** Sweden's savings on air conditioning! By using a fan blowing

filtered outdoor air into the equipment room, they can save up to 80 per cent of the energy costs compared to traditional air conditioning in hotter climates.

COMMUTING ON ICE

Peak iceberg season is followed by a quiet window before hurricane season in the North Atlantic kicks off in mid-September. Lots of routine maintenance is done during this time. Once the windy weather and cold returns, getting to and from work can be a challenge and helicopter travel can be hit or miss as inclement weather grounds the choppers. The height of waves can also dictate whether or not helicopters can land on the SeaRose, a floating facility.

For those on land in the north, extreme blizzards may make travel impossible, but the Husky Energy teams are equipped for almost any weather (with their second mini-engine!). **3** Sweden employees have a wide variety of means of getting to remote sites once the deep snows hit.

Some remote areas are actually easier to access using snowmobiles. Invented by Joseph-Armand Bombardier in Quebec, Canada in 1942, they have become an invaluable part of snow travel, replacing dog sleds in most instances in northern Europe and Canada. In both Sweden and Canada, four-wheel drive vehicles, snow shovels, snow tyres, chains and spikes for tyres are all standard equipment. **3** Sweden also uses all-terrain vehicles (known as ATVs), but with treads instead of wheels. Light helicopters also provide easier access to some areas. Occasionally, a friendly farmer with a snowplough may be enlisted to assist in clearing blocked roads. All in a day's work!

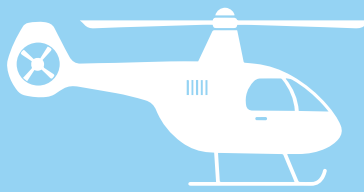
PROTECTING CANADA'S NORTH

Even when considering an emergency response to protect the environment, there are still some peculiarities to working in

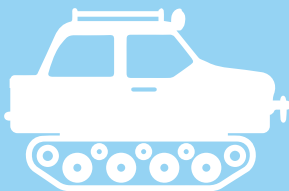
EQUIPPED FOR THE ICE



Snowmobile



Helicopter



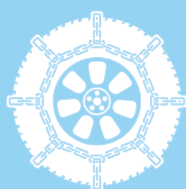
All-terrain vehicle



Four-wheel drive



Snow tyre



Chains



Spikes for tyres

the north. For example, petroleum workers in the oil-rich Middle East have probably never considered the difference between dealing with a potential oil spill in cold versus warm weather, or in transitional seasons like spring.

Husky Energy is hyper-aware of these considerations. Cold conditions retard response time, and equipment can be more brittle and prone to breakage if not treated carefully. In springtime, a leak would see oil move quickly into major lakes and rivers as snow melt means lots of water is moving quickly, creating temporary tributaries and small streams that don't exist in winter or autumn. Should a release happen in winter, contaminated snow is carried directly to containment units for separation of oil and water. Summertime emergency response may see water flow diverted directly into the containment areas. Husky Energy professionals understand how oil behaves differently in colder water and have plans for recovering oil that is trapped under ice.

ICEBERGS AREN'T THE ONLY GROWLERS

Husky Energy staff working in the north have one more thing that poses risk to life and limb: grizzly bears. These massive beasts compete with polar bears for the 'biggest bear' title. While they normally avoid humans, if bears are especially hungry or under other environmental pressures, they can kill. All outdoor working staff are trained on bear awareness and how to scare bears away. This can include bangers (a noise-making projectile) and pepper spray. For those who think the danger exaggerated, 2014 saw a (non-Husky Energy) technician killed in a bear attack in broad daylight in front of staff unable to prevent it. However, the last attack in Canada before that was in 1991 so it is not a frequent occurrence. Still, Husky Energy makes sure staff are prepared.



On the lighter side, non-Canadian employee Trevor Pritchard was asked what would surprise people from non-northern climes. Canadians normally have



Special clothing and an understanding of oil behaviour at sub-zero temperatures are all part of the job.

a long stick with a heavy duty scraper on one end and a brush on the other as part of their collection of tools in their car. "In the UK, we would just use a credit card to clear snow and ice from our windshields, so I have taken many a long-handled snow scraper back as a Christmas stocking stuffer."

Like the toque, Canadians don't even know that this is a national quirk, probably shared by Swedes. The staff at Husky Energy, **3** Sweden and Park'N Fly wouldn't consider themselves cold savvy - it's just daily life. But the lifetime of chilly education they get is buttressed by a huge range of research, systems, equipment and expertise that is designed to protect CKHH staff and the environment, serve their customers and help get the job done. For CKHH's sub-zero heroes, that's pretty cool. █

One more thing that poses risk to life and limb: grizzly bears.

