COLD STRESS PROGRAM

Production:

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STATEMENT OF PURPOSE

Workers who are exposed to extreme cold or work in cold or wet environments may be at a risk of cold stress. Severe cold stress can lead to hypothermia, which may be fatal. Symptoms of cold stress can range from shivering to loss of consciousness. This program contains procedures and practices for safely working in cold temperatures.

RESPONSIBILITIES

Production

- Ensure that a cold stress risk assessment is completed at -32°C equivalent wind chill or when work activities could result in a cold stress emergency.
- Provide a heated shelter or heated vehicle for workers when work is required to be performed in an equivalent chill temperature of -7°C (19°F) or less.
- Provide a means of hand warming for workers required to perform their tasks with bare hands when there is a risk of cold-related injury to the hands
- Provide administrative controls to reduce exposure to the risk of hypothermia or cold-related injuries when engineering controls are not practicable
- Maintain records, when required by the WorkSafeBC, of cold stress assessments and worker education and training
- Ensure that there is adequate first aid coverage and establish emergency procedures to deal with serious conditions such as hypothermia

Supervisors

- Ensure that their workers are made aware of all known or reasonably foreseeable cold hazards in the workplace.
- Ensure that workers under their direct supervision perform safe work practices in relation to working in a cold environment
- Ensure that workers who are at risk of cold-related disorders are adequately trained.

Workers

- Adhere to all control measures or work procedures that have been designed and implemented to reduce exposure to cold stress
- Follow instructions to enter a heated shelter or heated vehicle if exhibiting signs and symptoms of impending hypothermia
- Wear adequate insulating outer clothing

- Wear eye protection if work takes place outdoors in snow or ice covered terrain and if there is excessive ultraviolet light, glare or blowing ice crystals that present a risk of injury to the eyes
- Provide and wear protective gloves, mittens, footwear, head covering and/or facemask appropriate to the hazard if there is a danger of frostbite to the extremities

RISK IDENTIFICATION

Wind Chill Temperature

In outdoor conditions, both air temperature and wind speed affect how cold a worker feels. Wind chill is the term used to describe the rate of heat loss from the human body, resulting from the combined effect of low air temperature, and wind speed. Wind-chill accounts for the loss of heat from workers by replacing the micro-layer of warm air surrounding the body with a layer of colder air. If there were no wind, the layer of warm air would act as an insulator. When that insulation layer is blown away, the body then tries to heat up the new colder layer that causes the body to lose heat. This constant loss of heat causes the worker to feel like the temperature outside is cooler than the thermometer indicates.

The wind chill temperature is a single value that takes both air temperature, and wind speed into account. A wind chill temperature index is used to estimate the wind chill temperature. There are wind chill temperature guidelines that are used to conduct risk assessments and implement controls and safe working procedures. When work is done continuously in the cold when the wind chill temperature is -7°C (19°F), heated warming shelters are to be made available.

Cold Stress

During cold weather, the body uses energy to maintain a normal internal body temperature. This results in a shift of blood flow from a person's extremities (hands, feet and legs) and outer skin to the person's core (chest and abdomen). If exposed to cold conditions for an extended period of time, the body may be unable to warm itself resulting in serious cold-related injuries including permanent tissue damage. Types of cold stress include:

Hypothermia: Occurs when body heat is lost faster than it can be replaced. Prolonged exposure to cold will eventually use up the body's stored energy. Begins when the core body temperature starts to drop below 36°C. Symptoms include uncontrollable shivering, loss of coordination, confusion, slurred speech, heart rate/breathing slow, unconsciousness.

Trench foot: Non-freezing injury of the feet caused by prolonged exposure to wet and cold conditions. Occurs because wet feet lose heat faster than dry feet. Signs and symptoms include reddening skin, tingling, pain, swelling, leg cramps, numbness, and blisters.

Frostbite: Caused by the freezing of the skin and tissues resulting in the loss of feeling and colour in affected areas. Signs and symptoms include cold, hard, discoloured, or waxy looking skin and numbness, tingling, prickling or burning sensations.

Risk Factors

Personal risk factors which can affect workers for cold stress include:

- Poor physical fitness
- Not being used to working in the cold
- Having a cold or other flu like symptoms
- Chronic illness, especially heart disease, asthma/bronchitis, diabetes, mellitus, or chronic circulatory problems
- Drugs or medication such as alcohol, nicotine, caffeine can inhibit the body's response to the cold, or impair judgement
- Fatigue
- Vibration

RISK ASSESSMENT

The production will ensure that a cold stress risk assessment is completed at -32°C equivalent wind chill or when work activities could result in a cold stress emergency.

Refer to **Appendix A (*Cold Stress Risk Assessment*)**

Environmental conditions may be obtained from Environment Canada providing that information is recent and up to date. Refer to **Appendix B (*Equivalent Chill Temperature Table*)** for equivalent chill temperatures resulting from the effects of wind-chill.

CONTROLS

Working in Hazardous Wind-Chill Conditions

If the cold stress risk assessment indicates that a worker is exposed to a thermal environment with an equivalent chill temperature of -7°C (19°F) or less, the following work practices will be followed:

- The Production will provide a heated shelter or heated vehicle near the exposed worker
- Workers will be instructed to enter the shelter at the onset of symptoms of impending hypothermia or cold-related injury. Refer to **Appendix C (*Stages of Hypothermia*), Appendix D (*First Aid Treatment for Hypothermia*)** and **Appendix E (*Stages of Frostbite and First Aid Treatment*)**
- Workers must ensure they wear adequate protective clothing to prevent the risk of developing hypothermia

Working in Contact with Cold Surfaces

When working in contact with cold surfaces there is a risk of developing contact frostbite or other cold-related injuries. The Production will take the following precautions to protect workers:

- Ensure that workers know their responsibility to supply their own clothing and equipment for protection against the natural elements
- Ensure that workers wear protective gloves, mittens**,** and footwear appropriate for the hazard to which they are exposed
- Ensure workers wear insulated gloves when surfaces within their reach (especially metallic surfaces) are colder than -7°C (19.4°F). Workers will be warned to avoid skin contact with these surfaces.

Working with Bare Hands in a Cold Environment

When a worker is required to perform tasks with bare hands and the risk of cold-related injury is present, The Production will implement the following procedures:

- Where there is a risk of cold-related injury to the hands, Production will provide warm air jets, radiant heaters (fuel burning or electric), or warm contact plates as a means for hand warming. This could be provided from an interior vehicle heater.
- Where practicable, tools and machine controls to be used in cold conditions will be designed for operation by gloved hands

Administrative Risk Controls for Working in Hazardous Cold Environments

Where practicable, production will implement the following procedures to reduce the risk of workers' exposure to hypothermia or cold-related injury:

- Reduce, as much as possible, the number of activities performed outdoors. When workers must work outdoors, select the warmest hours of the day and minimize activities that reduce circulation
- Ensure that workers remain well hydrated
- Ensure that workers eat properly to maintain an adequate fluid balance in the cold climate. High caloric foods and items such as warm, sweet drinks and soups are recommended to maintain caloric intake and fluid volume.
- Employ a "buddy system" to keep a regular watch on each other, including faces, cheeks, and ears for signs of frostnip, frostbite and behavior for indications of impending hypothermia
- Keep a regular "self-check" for cold areas, wet feet, numbness, or loss of sensation
- If, at any time, a worker discovers a cold-related injury, they must stop work and re-warm the area, unless doing so places them at a greater risk

Personal Protective Equipment for Hazardous Cold Conditions

Personal protective equipment and clothing will only be used if:

a) The tasks required to be performed cannot be eliminated or substituted with another that will provide the desired results, and
b) Engineering controls are not practicable
c) PPE is needed in addition to engineering controls for extra protection

Protective Clothing

When working outdoors where there is the risk of exposure to hypothermia and cold-related injury, you are encouraged to wear adequate layers of clothing for optimal protection against the natural elements. Air captured between layers of clothing acts as an insulator, affording better heat conservation. These layers include:

Underlayer

This is the layer closet to the skin. Ideally this layer should consist of clothing made of a material that wicks moisture away from the body (such as polypropylene). Cotton is a poor choice for this layer as cotton tends to absorb and hold moisture, which can cause the body to lose heat.

Insulating Layer

This next layer serves to insulate the body and conserve body heat. There are many new materials available for use as an insulating layer. Wool is an excellent insulator and can conserve heat even when it is wet. A wool sweater serves well as the insulating layer for the upper body.

Outer Layer

This final layer provides a barrier to wind and moisture, as well as helping to conserve body heat. The best material for the outer shell is a breathable, water-proof material.

When wearing protective clothing, the following procedures will be followed:

- A worker who is at risk of developing hypothermia or cold-related injuries will wear adequately insulated outer clothing
- If clothing becomes wet so that its insulating value is impaired, the production will provide the worker with the opportunity to change into dry clothing.
- If a worker becomes immersed in water, the production will immediately provide the worker with dry clothing and if necessary, treat for hypothermia
- Workers will wear protective gloves, mittens, footwear, head covering and/or face masks if there is a danger of frostbite to the extremities
- Workers will protect their hands from cold when operating vibrating tools. They should ensure extra gloves are available if their gloves get wet.

Protective Equipment

If work is required outdoors in snow or ice-covered terrain and the worker is exposed to ultraviolet light, glare or blowing ice crystals, workers will ensure that they wear eye protection appropriate to the hazards.

ACCIDENTAL EXPOSURE

Exposure to hazardous outdoor cold conditions may occur to a worker as a result of an unplanned event. Such events may include, but are not limited to, breakdown in transportation, extension of the work-shift combined with deterioration in weather conditions or a requirement to perform a rescue operation.

If it can be reasonably anticipated that a worker may be exposed to hazardous outdoor cold conditions as a result of an unplanned event, production will provide the worker with sufficient clothing and equipment to permit their survival until such time that removal from the exposure is possible.

In the event that a worker exhibits signs and symptoms of hypothermia as a result of accidental exposure, co-workers will follow procedures for the treatment of hypothermia or cold-related injuries. If a worker requires emergency treatment, a first aid attendant, or a physician, if available, will assess the worker. If this is not practicable, call 911.

EDUCATION AND TRAINING

All workers at risk of developing hypothermia or cold-related injury will be trained in the following areas as covered in this program and the ***Cold Stress Safety Meeting*** (Appendix F):

- Definition of cold stress and terms used in the program
- Requirements for cold stress hazard identification and risk assessment procedures
- Requirements for the implementation of risk controls
- Requirements for providing hand warming devices
- Procedures for protecting workers at risk from accidental exposure
- Requirements for removing and treating workers exhibiting signs and symptoms of cold-related disorders

DOCUMENTATION

Production will maintain records of the following:

- Cold Stress Risk Assessments
- Cold Stress Incident Investigations
- Cold Stress Training

APPENDIX A – COLD STRESS RISK ASSESSMENT

Production Cold Stress Risk Assessment

Production: **Date:**

Cold stress hazards identified as "Little Danger"	• Equivalent Wind Chill between -7 and -31° Celsius*
	• Activities which could result in a cold exposure emergency.

Low risk of cold stress safe working procedures:

1. A heated shelter or heated vehicle must be made available near the worker.
2. Cast and crew must be instructed to enter a heated shelter at the onset of symptoms of impending hypothermia.
3. A worker who is at risk of developing hypothermia or cold-related injury must wear adequate insulating outer clothing.
4. If clothing becomes wet so that its insulating value is impaired, the worker must be provided with the opportunity to change into dry clothing in a heated shelter.
5. Protective gloves, mittens, footwear, head covering and/or facemasks, appropriate to the hazard, must be worn if there is a danger of frostbite to the extremities.
6. If a worker is required to perform work with bare hands and there is a risk of cold-related injury to the hands, provision must be made for warming the worker's hands to prevent cold-related injury.
7. If a worker may be exposed to hazardous cold conditions outdoors as a result of an unplanned event, the worker at risk must be provided with clothing and equipment sufficient to permit survival from exposure to the natural elements until the worker can be removed from the exposure.
8. If a cold-exposed worker exhibits signs and symptoms of impending hypothermia the worker must be removed from further exposure and assessed by a first aid attendant.
9. Workers at risk of developing hypothermia or cold-related injury must be trained.**

* See *Cold Stress Program*-Appendix B: *Equivalent Chill Temperature Table*

***Use the *Working in Cold Stress Safety Meeting* document

APPENDIX B – EQUIVALENT CHILL TEMPERATURE

Estimated Wind Speed (KM/h)	**Actual Temperature Reading**												
	10	**5**	**0**	**-5**	**-10**	**-15**	**-20**	**-25**	**-30**	**-35**	**-40**	**-45**	**-50**
	Equivalent Chill Temperature												
Calm	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50
8	9	3	-2	-7	-12	-18	-23	-28	-33	-38	-44	-49	-54
16	4	-2	-7	-14	-20	-27	-33	-38	-45	-50	-57	**-63**	**-69**
24	2	-5	-11	-18	-25	-32	-38	-45	-52	-58	**-65**	**-72**	**-78**
32	0	-7	-14	-21	-28	-35	-42	-50	-56	**-64**	**-74**	**-78**	**-84**
40	-1	-8	-16	-24	-31	-38	-46	-53	**-60**	**-67**	**-76**	**-82**	**-90**
48	-2	-10	-17	-25	-33	-40	-48	-55	**-63**	**-70**	**-78**	**-86**	**-94**
56	-3	-11	-18	-26	-34	-42	-50	-58	**-65**	**-73**	**-81**	**-89**	**-96**
64	-3	-11	-19	-27	-35	-43	-59	**-59**	**-66**	**-74**	**-82**	**-90**	**-98**
	Little Danger, In <1hr with dry skin. Maximum danger of false sense of security				**Increasing Danger**, Danger from freezing of exposed flesh within one minute.			**Great Danger**, Flesh may freeze within 30 seconds					

APPENDIX C – STAGES OF HYPOTHERMIA

Stages of Hypothermia		
Stage	**Core Temperature**	**Signs and Symptoms**
Mild Hypothermia	36°C-35°C (96.8°F-95°F)	• Feel chilled/cold sensation • Goose bumps • Unable to perform complex tasks with hands • Poor judgement, muddled thinking, and abnormal behavior • Bouts of Shivering • Hands may be numb
Moderate Hypothermia	35°C-32.2°C (95°-90°F)	• Violent shivering or shivering has stopped altogether • Inability to think and pay attention (e.g., cannot understand what is being said) • Mild confusion although may appear alert • Slow, shallow breathing • Slurred speech • Poor body co-ordination (e.g., stumbling gait) • Slow, weak pulse
Severe Hypothermia	< 32.2°C (< 90°F)	• Shivering has stopped • Unconsciousness • Little or no breathing • Weak, irregular, or non-existent pulse • Dilated (wide open) pupils • Exposed skin blue and/or puffy • Possible similarity of symptoms to clinical definition of death

APPENDIX D – FIRST AID TREATMENT FOR HYPOTHERMIA

General Tips for Handling Hypothermic Victims

- Always handle the victim gently. Rough handling can cause heartbeat irregularities and death
- Remove the victim from the cold environment and assess by a First Aid Attendant or by a physician, as soon as possible
- Hot fluids may be given only if the victim is fully alert, without any signs of confusion. Victims with moderate and severe hypothermia have a high risk of vomiting and must not be given anything by mouth
- Do not attempt to exercise victims. Take immediate measures to prevent further heat loss and continue to do so even if victim regains consciousness
- Remember that the victim may still be alive even if there is little or no pulse or heart beat

Management/Rewarming of Mild Hypothermic Victims

- Minimize his/her exertion
- Remove wet clothing and get the victim into warm, dry clothes and wrap victim in warm blankets. Make sure the victim's head is covered. Place something warm and dry under the victim. Move the victim to a warm environment. Don't make the victim exercise to warm up
- Do not suppress shivering, even if violent. Shivering is the most effective way to generate body heat
- Do not massage the extremities (hands, arms, legs, feet, etc.,) or the trunk
- Do not place victim in a warm bath or shower

Management/Rewarming of Moderate to Severe Hypothermic Victims

- Check for airway obstructions and breathing or circulation problems and perform appropriate action if there are any abnormalities in these areas
- Remove all wet clothing, make sure victim is dry and replace with dry, multiple-layered coverings. If possible, the victim should have a polypropylene layer next to the skin to minimize sweating on the skin
- Wrap the victim in warm blankets or a sleeping bag. If this is not possible, cover the victim with warm dry clothing or blankets, making sure that the victim's head is covered and something warm and dry is also placed under the victim.
- Move the victim to a warm, dry environment
- Do not suppress shivering, even if it is violent. Shivering generates body heat
- Do not give anything by mouth, as there is a high risk of vomiting
- Do not massage the trunk or extremities of the victim

- Do not place the victim in a hot bath or shower
- If available, heated, humidified air or oxygen should be administered
- Continue first aid treatment even if the victim appears lifeless. The body sometimes survives for hours without signs of life at very low body temperatures
- Know how to assess hypothermia and give help when it is needed, even if the victim resists help. The victim may be confused and unaware of what is happening and may deny assistance when it is needed
- Arrange rapid transport to the nearest medical facility

CPR for Hypothermic Victims

If a person is suffering from severe hypothermia, they may exhibit many of the clinical signs of death:

- Cold
- Blue skin
- Fixed and dilated pupils
- No discernible pulse
- No discernible breathing
- Comatose and unresponsive to any stimuli
- Rigid muscles

Despite exhibiting these signs, the victim may still be alive and further steps should be taken to closely evaluate the victim's condition:

- Check for airway obstructions and breathing or circulation problems. Take appropriate action if there are any abnormalities in these areas
- Complete a full 1-minute assessment of the victim. The radial pulse may be absent if the victim is in severe hypothermia, therefore, check the carotid pulse for a 1-minute period to ascertain if there is a slow heartbeat. Although the heart rate may be as low as 2-3/minute and breathing rate 1/30 seconds, the heart will be filling completely and distributing blood fairly effectively. Due to the severely reduced demands of the hypothermic body, the reduced heartbeat may be able to satisfy circulatory needs with only 2-3 beats/minute
- If there is no pulse, commence CPR and continue to do so as the victim is re-warmed

Although ventilation may have stopped, it is possible that the body may be able to survive for some time using only the oxygen that is already in the body. If ventilation has stopped, artificial ventilation should be commenced. In addition to making more oxygen available, blowing warm air into the person's lungs may assist in internal rewarming

Note: During severe hypothermia the heart is hyperexcitable and mechanical stimulation such as CPR, moving the victim or the effects of “after drop”, may result in fibrillation of the heart, leading to death. As a result, CPR may be contraindicated for some hypothermic victims.

APPENDIX E – STAGES OF FROSTBITE & FIRST AID TREATMENT

Frostbite most typically affects the ears, cheeks, nose, fingers and toes. By using a "buddy system" it is possible to prevent frostbite injuries from occurring if co-workers are educated in the signs and symptoms of the disorder.

First Aid Treatment for Frostbite		
Stage of Frostbite	**Signs and Symptoms**	**First-Aid Treatment**
Frostnip	• Freezing of the top layers of skin tissue • Skin appearance: white, waxy, • To touch: top layer of skin feels hard & rubbery • Deep tissue is still soft • Numbness	• Rewarm the area gently, generally by blowing warm air on it or placing the area against a warm body part • Do not rub the area – this causes damage to skin and tissue
Superficial Frostbite	• Skin appearance: white • To touch: wooden feeling throughout affected area • All layers of skin affected • Numbness, sensation may be absent	• Rewarm as for frostnip if affected area is only small • If area is large, use immersion method • Transport to hospital if necessary
Deep Frostbite	• Skin appearance: white • To touch: wooden feeling throughout affected area • Includes all layers of the skin • May include freezing of muscle and/or bone	• Begin rewarming techniques using immersion method • Transport to hospital as soon as possible

Rewarming Techniques for Frostbite Injury

- Treatment for frostbite should ideally be performed in a hospital. The following procedures may be followed if, for some reason, hospital treatment is not available:
- Monitor water temperature (38.9°C - 43.33°C /102°-110°F) closely throughout the immersion period
- Remove any wet or tight clothing
- Gently place the affected area in a warm water bath. If warm water has to be added to maintain immersion temperature, do not pour directly on the affected area as this will cause the tissue to warm too fast causing further damage
- Circulate the water frequently to maintain an even temperature
- Immerse affected body area for 25-40 minutes as appropriate
- Thawing is complete when the part is pliable, and color and sensation has returned. Discontinue the warm water bath when thawing is complete
- Do not use dry heat to re-warm
- After the affected area has been warmed, it may become puffy and blister with a burning feeling or numbness. When normal feeling, movement and skin color have returned, the affected area should be dried and wrapped in a sterile bandage to keep it clean and warm. Warning: once the area is re-warmed, there can be significant pain
- If there is a chance that the affected area may get cold again, do not re-warm it as it will cause severe tissue damage
- If the person is hypothermic and frost-bitten, the first concern is to re-warm the core body temperature. Do not re-warm the frost-bitten areas until the core temperature reaches 35.5°C (96°F)
- Refrain from consuming alcohol
- Refrain from smoking, as nicotine constricts blood vessels thereby increasing the risk of developing frostbite
- Seek medical attention as soon as possible

APPENDIX F: COLD STRESS SAFETY MEETING

The Hazards of Cold Stress

Hypothermia

A decrease in the core body temperature to a level at which normal muscular and cerebral functions are impaired. This process begins when the core body temperature drops below 36°C (96.8°F) The quiet symptoms of potentially fatal cold-related disorders, including hypothermia, often go undetected until the worker's health is endangered.

Frostbite

Two factors, the external temperature, and the body's blood flow, affect tissue temperature in cold weather. All cold-related injuries are inherently affected by the dynamics of blood flow in the peripheral regions of the body. As peripheral circulation is reduced to prevent heat loss to the body core, cold-related injuries are more likely to occur.

Early signs of frostbite can include, cold, hard, blistering, discolored, or waxy looking skin. Symptoms may include numbness, tingling, prickling, or burning sensations.

Assessing the Risk

Production will assess the risk and implement safe work procedures when workers might be at risk of hypothermia or cold-related injuries. Workplace conditions that may alert the production to conduct a cold stress risk assessment are:

- Temperature: Predicted wind chill equivalent temperature of -32 degrees Celsius
- Work activities that could result in a cold stress emergency. E.g., Unexpected exposure to frigid conditions

There are also risk factors that will increase the degree of cold stress and likelihood of hypothermia, including:

- Poor physical fitness
- Not being used to working in the cold
- Having a cold or other flu like symptoms
- Chronic illness, especially heart disease, asthma/bronchitis, diabetes, mellitus, or chronic circulatory problems
- Drugs or medication such as alcohol, nicotine, caffeine can inhibit the body's response to the cold, or impair judgement
- Fatigue
- Vibration

Proper Use of Clothing

When working outdoors where there is the risk of exposure to hypothermia and cold-related injury, you are encouraged to wear adequate layers of clothing for optimal protection against the natural elements. Air captured between layers of clothing acts as an insulator, affording better heat conservation. These layers include:

Underlayer

This is the layer closet to the skin. Ideally this layer should consist of clothing made of a material that wicks moisture away from the body (such as polypropylene). Cotton is a poor choice for this layer as cotton tends to absorb and hold moisture, which can cause the body to lose heat.

Insulating Layer

This next layer serves to insulate the body and conserve body heat. There are many new materials available for use as an insulating layer, but wool is an excellent insulator and can conserve heat even when it is wet. A wool sweater serves well as the insulating layer for the upper body.

Outer Layer

This final layer provides a barrier to wind and moisture, as well as helping to conserve body heat. The best material for the outer shell is a breathable, water-proof material.

Hypothermia and Use of Shelters

If the Equivalent Chill Temperature is -7°C (19°F) or below, production will ensure that a heated shelter is located near the work area. You are encouraged to use these shelters at regular intervals depending on the equivalent chill temperature. A heated vehicle is acceptable as a heated shelter.

Workers entering the shelter should remove their outer layer of clothing and loosen other clothing to let perspiration evaporate. In some cases, a change of clothing may be necessary.

Workers exhibiting signs and symptoms of hypothermia or cold-related injuries need to be evaluated by a First Aid Attendant.

Eating and Drinking

High-caloric foods are important when working in cold environments. Warm, sweet drinks and soups help to maintain caloric intake and fluid volume. It is important to maintain an adequate fluid balance, as working in cold environments can result in excessive perspiration. Coffee should be discouraged because it increases water loss and blood flow to body extremities.

Safe Work Practices

- Employ a “buddy system” to keep a regular watch on each other, including faces, cheeks, and ears for signs of frostnip, frostbite, and behavior for indications of impending hypothermia.
- Keep a regular “self-check” for cold areas, wet feet, numbness, or loss of sensation.

- If you discover a cold-related injury, stop work and re-warm the area of the injury.
- If there's a risk of cold injury to the hands, a means of warming the hands must be available.

General Tips for Hypothermia

- Remove the affected person from the cold environment and have assessed by a First Aid Attendant or by a physician, as soon as possible
- Always handle the affected person gently. Rough handling can cause heartbeat irregularities and death
- Hot fluids may be given only if the affected person is fully alert, without any signs of confusion. Moderate and severe hypothermic individuals have a high risk of vomiting
- Take immediate measures to prevent further heat loss and continue to do so even if the affected person regains consciousness
- Remember that affected person may still be alive even if there is little or no pulse or heartbeat

Stages of Hypothermia		
Stage	**Core Temperature**	**Signs and Symptoms**
Mild Hypothermia	36°C-35°C (96.8°F-95°F)	• Feel chilled/cold sensation • Goose bumps • Unable to perform complex tasks with hands • Poor judgement, muddled thinking, and abnormal behavior • Bouts of Shivering • Hands may be numb
Moderate Hypothermia	35°C-32.2°C (95°-90°F)	• Violent shivering, or shivering has stopped altogether • Inability to think and pay attention (e.g. cannot understand what is being said) • Mild confusion although may appear alert • Slow, shallow breathing • Slurred speech • Poor body co-ordination (e.g. stumbling gait) • Slow, weak pulse
Severe Hypothermia	< 32.2°C (< 90°F)	• Shivering has stopped • Unconsciousness • Little or no breathing • Weak, irregular, or non-existent pulse • Dilated (wide open) pupils • Exposed skin blue and/or puffy • Possible similarity of symptoms to clinical definition of death