

**CANADA
PROVINCE OF NEWFOUNDLAND &
LABRADOR**

**IN THE PROVINCIAL COURT OF
NEWFOUNDLAND & LABRADOR**

HER MAJESTY THE QUEEN

v.

DEPT. OF JUSTICE AND PUBLIC SAFETY

AGREED STATEMENT OF FACTS

Summary

1. On Thursday, 21 February, 2013, Officer Howard Lavers, a 57 year old Fish and Wildlife Enforcement (FWE) Officer, died when the snowmobile he was operating broke through and sank under the ice on Eastern Blue Pond (Narrows Area), Newfoundland and Labrador, approximately 30 km from Bellburns, NL.
2. Officer Howard Lavers was on snowmobile patrol as part of a routine investigation of a firearms violation with two other FWE Officers when the snowmobile he was riding broke through the ice.
3. Rescue attempts by fellow Officers failed to remove Howard Lavers from the water and he drowned.
4. FWE Officers routinely travel over ice covered bodies of water during the winter.
5. However, at the time of this incident FWE had no written safe work procedure (SWP) for travel over ice, including no written procedures for checking ice thickness prior to travel on ice.
6. While FWE had a number of SWP and policies in place for FWE officers, including a Working Alone Policy and a policy regarding the use of SPOT(GPS) devices for tracking/locating officers, these policies were not always followed by officers and

this was known to the FWE.

7. While FWE Officers were issued numerous Personal Protective Equipment (PPE), including personal flotation devices, ice picks, and other safety equipment, there was no policy or other mechanism in place to ensure appropriate PPE was used or carried while on patrol.
8. Some of the PPE previously issued to FWE Officers for travelling over ice was inadequate, including no appropriate flotation snowmobile suit in the event an officer broke through the ice.
9. The Officers present with Officer Lavers had not received proper training in ice rescue, including no training in the use of throw bags.
10. Other provincial departments had experienced previous incidents of officers going through the ice while operating snowmobiles. However, these incidents were not investigated or documented and no policies or strategy was put into place to prevent reoccurrences.

Background

11. The Fish and Wildlife Enforcement Division is part of the Department of Justice, Government of Newfoundland and Labrador. FWE enforces fish and wildlife regulations in the province of Newfoundland and Labrador.
12. FWE has 68 employees, including 54 field employees, including both full time and seasonal Officers and Staff.
13. Officer Howard Lavers had worked as a Wildlife Enforcement Officer for FWE and other government departments for more than 25 years.

February 21, 2013 – The Incident

14. Weather conditions on February 21, 2013 were fair.
15. On the morning of 21 February, 2013 2 other FWE Officers (identified as officers A and B) met near Hawke's Bay, NL to conduct a snowmobile patrol as part of a routine investigation of a firearms violation. Officers A and B had made arrangements the previous day with Officer Lavers to meet at Officer Lavers' cabin on Eastern Blue Pond. Officers A and B arrived at the cabin at noon.
16. At approximately 13:30 hours the three Officers departed the cabin and headed across Eastern Blue Pond towards the "narrows" in the direction of River of Ponds to begin their patrol. When the three Officers left the cabin Officer Lavers was in the lead, followed by Officer B and then Officer A.
17. None of the Officers were wearing personal flotation devices or similar PPE when they left on patrol. Use of PPE, including personal flotation devices, was not required by the Division for those travelling over ice.
18. Ice thickness on the pond was not checked prior to the Officers heading out. No such check was required by any FWE policy.

19. While travelling across Eastern Blue Pond, Officer Lavers stopped and said that there was snow flicking back on him but nothing could be seen that would cause this. Officer B then took the lead followed by Officer A and Officer Lavers.
20. As they approached the "narrows" open water was observed by Officer B to the right of the route of travel. Officer B crossed from one point of land to another point of land to avoid the visible open water but while doing so his snowmobile broke through the ice. Officer B was able to cross this area with snow, slob, ice, and water clearly being thrown from the track of his snowmobile.
21. Officer B was able to get to solid ice or land and made hand and arm gestures to Officer A to direct him away from the unsafe area. Officer A did avoid any unstable ice and stopped near Officer B.
22. Officer Lavers was observed coming around the point of land, Officer B was again using hand and arm gestures to warn Officer Lavers of the dangerous area. Officer Lavers was observed increasing his speed and travelled parallel to Officer B's route but closer to the open water. Officer Lavers' snowmobile then went through the ice, disappearing very quickly.
23. Officer Lavers tried to jump towards unbroken ice towards the shore where Officer A and Officer B were located. Officer Lavers went into the water and upon surfacing called for help while being submersed in water to his shoulder/neck area and holding onto the Ice edge.
24. Officer A obtained his rescue rope and walked out towards Officer Lavers but broke through the ice and went into the water. Officer A was able to get back to solid Ice and rolled to safety.
25. Officer B removed all his outer clothing and dressed only in thermal underwear and socks attempted to get closer to Officer Lavers. Officer B also went through the ice and Officer A was able to assist Officer B out with the rescue rope.
26. Officers A and B made several attempts to throw the rescue rope to Officer Lavers but due to wind were unable to get the rope to Officer Lavers.
27. Officer A then tied a rescue shovel to the rope to add weight so the rope would not be affected as much by the wind. Officer B moved closer to Officer Lavers but was still unsuccessful after numerous attempts to get the rope to officer Lavers. Officer B broke through the ice several times while trying to attempt this rescue and was assisted out each time by Officer A.
28. Officer Lavers vocalized that he was getting very cold and would not be able to hang on much longer. A tree stump was obtained by Officers A and Officer B and this was also tied to the rescue rope for more weight.
29. Officer Lavers was told to drop his service belt but Officer Lavers vocalized that he could not, as he could not let go of the ice.
30. After several attempts the rescue rope was thrown to Officer Lavers and he was able to get one if not two hands on the rope. Officer A tied the free end to a snowmobile and began to move forward in an attempt to pull Officer Lavers from

the water. Officer Lavers was pulled partially out of the water onto the ice but the ice broke through again and Officer Lavers went completely under the water.

31. Officer Lavers was seen surfacing and could be heard blowing as if he had taken water into his body. Officer A again tried to use the snowmobile to pull Officer Lavers out. The snowmobile lost traction and began to spin and when Officer A looked towards Officer Lavers he observed that only Officer Lavers hand could be seen and then the hand slipped beneath the surface. There was no sight of Officer Lavers after this time.
32. Officer A observed that Officer B was severely shaking and appeared to be in bad shape. Officer A assisted in getting Officer B dressed as Officer B was unable to dress himself as he was too cold. Officers A and B returned to Officer Lavers' cabin to seek shelter and warmth. Officer A called the Corner Brook Fish and Wildlife Enforcement office to report the Incident and then waited for help to arrive.
33. On 22 February, 2013, RCMP dive team completed a scene search and documented the scene. **Photos of the scene taken by the RCMP are attached at Tab A.**
34. Officer Howard Lavers body was located near the edge of the hole where the rope leading from shore was located. Officer Lavers was still wearing full uniform including winter jacket, snow pants, gloves, green rubber boots and secured duty belt including firearm.
35. On February 22, 2013 Fish and Wildlife Enforcement advised snowmobile patrols to cease for all officers of the division pending a review of the incident.

PPE, Safe Work Policies and Procedures at FWE

Prior incidents

36. Investigation into this incident revealed two other incidents where personnel from other government departments went through ice while operating snowmobiles while on patrol.
37. FWE and other government departments did not track these types of workplace incidents, and the known incidents were not investigated or documented. No policy or procedure was developed for ice safety prior to October 2013.

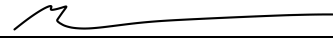
Equipment Issues, Policies and Gaps

38. All Fish and Wildlife Enforcement Officers are issued SPOT units which is a GPS (global positioning system) based device that is monitored by an international company. FWE policy requires that all members have their SPOT units turned on and operating when working. The units have a tracking mode that is updated approximately every 10 minutes. The SPOT units also have a 911 feature that the user can activate if they require help.
39. On 21 February, 2013 Officer A activated the 911 feature after he and Officer B

had returned to Officer Lavers' cabin. This was detected by the monitoring company and a call was made to the Fish and Wildlife Enforcement Division in Corner Brook, NL to advise of the alert.

40. There is no data available from Officer B's or Officer Lavers' SPOT units.
41. Investigation into this incident revealed that some FWE members did not turn on their units as required by the Division's policy, and the FWE was aware of this having been an issue with some Officers in the past.
42. FWE have in place a "Working Alone" procedure, effective as of March 12, 2012, and disseminated March 16, 2012. Officers working in the field after hours are to call the Royal Newfoundland Constabulary (RNC), Corner Brook, NL to advise where they are, and their estimated time of arrival at their destination. There is no record of Officer Lavers contacting the RNC to report his travelling before or after normal working hours, nor was any other member of the Fish and Wildlife Enforcement Division aware of when Officer Lavers travelled to the cabin.
43. FWE Officers routinely travel over ice covered bodies of water during the winter.
44. FWE did not have a written procedure for workers travelling over ice at the time of this accident, including no written procedures for checking ice thickness prior to travel on ice.
45. While FWE Officers were issued personal flotation devices, ice picks, and other relevant safety equipment, FWE had no policy or other mechanism in place to require, and to ensure, that all appropriate equipment was used or carried while on patrol when travelling over ice.
46. A comprehensive "Travelling and Working on Ice" policy was developed following this incident, effective October 7, 2013. **A copy of the new "Travelling and Working on Ice" policy is Attached at Tab B.**
47. All FWE staff received orientation/training on the "Travelling and Working on Ice" policy following this incident.
48. Review of this incident also determined that the PPE previously issued to FWE Officers for travelling over ice was inadequate, including no appropriate flotation snowmobile suit in the event an officer broke through the ice.
49. Following the incident, FWE has identified, tested and selected new PPE – specifically the Mustang Survival Ice Rider snowmobile suit – for use when travelling over Ice and working in cold weather environments. FWE staff are now required to wear flotation snowmobile suits at all times when travelling on snowmobile. **A FWE report "Field Testing of Flotation Clothing" outlining the testing and benefits of the new PPE is attached at Tab C.**
50. The Officer present with Officer Lavers had not received proper training in ice rescue, including no training in the use of throw bags.

Consented to on behalf of the Crown



Alex Keaveny

Consented to on behalf of Dept. of Justice and
Public Safety

John Drover

Tab A - Photos of the scene taken by the RCMP



Photo 1 (IMG_0174)



Photo 2 (IMG_0175)



Photo 3 (IMG_0176)



Photo 4 (IMG_0177)



Photo 5 (IMG_0174)



Photo 6 (IMG_0173)



Photo 7 (IMG_0178)

Tab B – October 2013 “Travelling and Working on Ice” policy

ENFORCEMENT POLICY AND PROCEDURE MANUAL

DEPARTMENT: JUSTICE

BRANCH: PUBLIC SAFETY AND ENFORCEMENT

DIVISION: FISH AND WILDLIFE ENFORCEMENT

Issuing Authority: Director of Fish & Wildlife Enforcement

Procedure Number: C34

Subject: TRAVELLING AND WORKING ON ICE

Effective Date: October 7, 2013 **Expiry Date:** Permanent

Legislative Authority: *Occupational Health and Safety Act and Regulations*

Purpose: To provide direction to Fish & Wildlife Enforcement staff regarding all on-ice travel and to assist staff in identifying foreseeable hazards while conducting field patrols during winter months. This includes, but is not limited to snowmobile, all-terrain vehicle (ATV), or by foot in winter months/when ice exists.

This procedure applies to all personnel of the Fish & Wildlife Enforcement Division (FWED).

Definitions:

Communications Devices – Includes satellite phone, SPOT™ Messenger Unit, cellular phone and portable radio.

Emergency Response Plan (ERP) – A plan containing a set of instructions intended to be initiated when responding to an emergency situation.

Field Level Risk Assessment (FLRA) – A method that an individual or group of individuals would use to minimize or eliminate potential losses (to people, property, or materials) during/on the day of a planned activity and to evaluate the risks of a given activity in a given area.

Flotation Snowmobile Suit – For purposes of this procedure means issued *Mustang Survival Ice Rider* – MJ6270CB IRX Extreme Jacket and MP4231CB Bib Pants (unless otherwise indicated).

Personal Protective Equipment (PPE) – Specialized clothing worn or equipment used by employees for protection against health and safety hazards. Personal protective equipment is designed to protect many parts of the body (i.e., eyes, head, face, hands, feet, and ears). PPE includes flotation snowmobile suit, throw rope, ice picks, etc.

Satellite Personal Tracker (SPOT™) – Satellite-based personal tracking device worn by an employee.

Workplace – A place where a worker is engaged in an occupation and includes a vehicle or mobile equipment by the worker in that occupation.

Table of Contents


GENERAL:.....	- 4 -
PROCEDURE:.....	- 5 -
1. GENERAL RESPONSIBILITIES	- 5 -
2. PLANNING	- 8 -
3. MANDATORY REQUIREMENTS.....	- 10 -
4. SAFE SNOWMOBILE OPERATION	- 13 -
5. FIELD LEVEL RISK ASSESSMENTS (FLRA)	- 15 -
6. EMERGENCY RESPONSE PLAN (ERP) AND PREPAREDNESS	- 18 -
7. ADDITIONAL RESOURCES	- 21 -
APPENDIX #1 – INFORMATION ABOUT “ICE” (TYPES, THICKNESS, ETC)	- 22 -
APPENDIX #2 – RESCUE THROW BAG INSTRUCTIONS.....	- 26 -
APPENDIX #3 – SNOWMOBILE HAND SIGNALS	- 27 -
APPENDIX #4 – INFORMATION ON SNOWMOBILE SPEED	- 28 -
APPENDIX #5 – HYPOTHERMIA AND COLD WATER	- 29 -
APPENDIX #6 – LINKS TO TECHNICAL SPECIFICATIONS AND INFORMATION – “MUSTANG ICE RIDER SUIT”	- 32 -



General:

The provincial *Occupational Health and Safety (OHS) Act* sets standards to protect and promote the health and safety of workers throughout the province. This legislation outlines the rights and responsibilities of employers, workers and others who are at the workplace. Under the *OHS Act*, employers must do everything reasonable to protect the health and safety of workers. This means that employers must set up safe work practices at their workplace and make sure these practices are followed. It is up to the employer to make sure workers have the skills and training needed to perform their work safely. Workers are required by the *OHS Act* to work safely and cooperate with the employer by following health and safety rules. Workers must be told about any dangers at the job site/workplace.

The Fish & Wildlife Enforcement Division is committed to providing a safe and healthy work environment for all staff. FWED staff undertake a variety of field operations and patrols that involve working on frozen bodies of water (hereafter referred to as “ice”). This policy is intended to describe mandatory requirements for all winter field travel where bodies of water have or may have frozen to any degree, and to give staff the knowledge and tools necessary to assess and make informed decisions in the field/workplace.



Officer safety is the first priority when conducting patrols and carrying out enforcement activities and therefore officers must always conduct a Field Level Risk Assessment (FLRA). Because of the nature of fish and wildlife enforcement work, officers often have to assess an associated risk at a moments notice and make an informed decision based on their experience, training, available equipment, and established procedures.

When assessing risk levels, officers must understand that situations can change quickly. Any risk assessment must take into account all factors up until the response decision. An officer should be prepared to make the best decision for all those involved and justify his/her response by articulating the factors present at the time of the response.

Procedure:

1. GENERAL RESPONSIBILITIES

*Occupational Health and Safety Regulations, 2012
under the Occupational Health and Safety Act*

General duties of employers

14. (1) An employer shall ensure, so far as is reasonably practicable, that all buildings, structures, whether permanent or temporary, excavation, machinery, workstations, places of employment and equipment are capable of withstanding the stresses likely to be imposed upon them and of safely performing the functions for which they are used or intended.

(2) An employer shall ensure that necessary protective clothing and devices are used for the health and safety of his or her workers.

(3) The employer shall ensure that safe work procedures are followed at all workplaces.

(4) An employer shall ensure, so far as is reasonably practicable, that work procedures promote the safe interaction of workers and their work environment to minimize the potential for injury.

Responsibilities of Employer:

Ensures on a regular basis that:

- Work activities adhere to this procedure.
- Work is organized in accordance with this procedure and that mandatory requirements have been addressed and implemented into local operating procedures.
- Employees required to work on ice have been provided with information and training prior to commencing activity on ice. This includes but is not limited to the posting of information in sufficient workplace locations to ensure all employees required to travel on ice have access to the information.
- Employees are provided with information regarding assessing the thickness of the ice and its ability to support the planned activity.
- All information and instruction as indicated in this procedure is provided to workers prior to any activity involving working on ice.

General duties of supervisors:

5.1 A supervisor shall ensure, where it is reasonably practicable, the health, safety and welfare of all workers under his or her supervision.

5.2 A supervisor shall

- (a) advise workers under his or her supervision of the health or safety hazards that may be met by them in the workplace;*
- (b) provide proper written or oral instructions regarding precautions to be taken for the protection of all workers under his or her supervision; and*
- (c) ensure that a worker under his or her supervision uses or wears protective equipment, devices or other apparel that this Act, the regulations or the worker's employer requires to be used or worn.*

Responsibilities of Supervisor:

- Represent FWED to his or her staff; represent staff to his or her upper management; communicate upward and downward.
- Ensures that all the work is done in a safe manner; supervise work to ensure safety of employee.
- Accountable for the health and safety of employees reporting to them.
- Be proactive with relation to safe work practices involving travel on ice; act on any deficiencies identified (i.e. take corrective action when necessary).
- Plan a systematic approach to safe work practices involving travel on ice.
- Regularly check/inspect equipment to determine that equipment is effective; ensure defective equipment is replaced.
- Know and understand all safe work practices/rules/procedures/policies pertaining to travel on ice.
- Consistently enforce safety procedures to ensure compliance.
- Conduct regular/periodic safety meetings (i.e. "Toolbox Meetings") and respond properly to reports.

General duties of workers

17. (1) A worker shall make proper use of all necessary safeguards, protective clothing, safety devices, lifting devices or aids, and appliances

(a) designated and provided for his or her protection by the employer; or

(b) required under these regulations to be used or worn by a worker.

(2) A worker shall follow the safe work procedure in which he or she has been instructed.

(3) A worker shall immediately report a hazardous work condition that may come to his or her attention to the employer or supervisor.

Responsibilities of Worker:

- Have an understanding that their type of work maybe difficult at times and there may be associated risks at varying levels.
- Adhere to the appropriate measures initiated by the Division and report any unsafe conditions to their immediate supervisor.
- Have a working understanding of the various issues and conditions to which they may be subject. Officers receive continuous training and are provided the necessary protective equipment to assist them in performing their duties in a safe, effective and efficient manner.
- Apply their working knowledge, training, skills and common sense to each situation, and always determine the associated risk involved and if warranted, disengage if necessary.
- Assess any local hazards, and take all reasonable precautions to ensure their personal safety while working on ice.
- Work in compliance with this procedure and all information, training and instruction as provided by FWED.
- Consider current environmental factors prior to working on ice.

2. PLANNING

It is necessary to properly plan any work that takes place in the field/workplace and possibly in a remote location. Having the appropriate information, equipment, and knowledge of local conditions is vital to safe field operations.

Officers are to discuss the work/patrol plan for the day with Detachment Supervisor.

There are a number of important activities all staff must undertake before conducting winter field activities that may involve crossing frozen bodies of water. Supervisors are to meet with staff and discuss travelling and working on ice prior to freeze up and periodically throughout the winter season. Topics for discussion will include:

i) General Pre-Trip Planning

- Determine locations and lengths of time at specific work areas/places.
- Identify any special hazards and controls.
- Check anticipated weather conditions for planned work date and assess such factors as recent weather/temperatures.
- Inquire about the ice conditions from local contacts and/or other colleagues with previous experience in this geographic area (date of ice formation, open water, sources of warm water, previous history).
- Plan for adverse weather, equipment breakdown or other potential hazards.
- Ensure ice is of adequate thickness and quality for safe work and travel (as per Appendix #1 and Section #5).
- Ensure that workers communicate their patrol plan with appropriate contacts.
- Ensure all workers are instructed in and familiar with the use of all communication devices.
- Be thoroughly familiar with the local Emergency Response Plan (ERP) (as per Section #6).
- Ensure that officers have sufficient resources (labour, PPE, equipment and materials, communication equipment) to carry out the task safely.

ii) Be Aware of Associated Hazards

Some potential hazards associated with working and/or travelling on ice include:

- Drowning (poor ice cover or open water)
- Cold water exposure (hypothermia)
- Extreme weather conditions (hypothermia, sunburn, frost bite, eye damage due to glare, etc)
- Snow cover (inability to see ice conditions, open seams, cracks)
- Poor visibility (inability to see ice conditions, open seams, cracks)
- Slipping and falling (slippery conditions, overriding ice)
- Fatigue (travelling through heavy snow)

iii) Be Familiar with the Types of Ice

Having extensive knowledge of the different types of ice is crucial and extremely helpful. Provided in Appendix #1 is a variety of resources relating to types of ice. Officers must take adequate time to

educate themselves on the various types of ice in order to make educated and informed decisions and assessments in the field.

iv) Be Familiar With, Inspect and Maintain All Issued PPE

- Read and understand all PPE operating and instruction manuals.
- Ensure that issued equipment is maintained in accordance with manufacturers requirements/instructions.
- Ensure an understanding of how such equipment works and how to deploy in an emergency situation.
- Officers must contact his/her Supervisor immediately if equipment is lost, damaged or inoperable.

v) Be Familiar With, Inspect and Maintain All Issued Communications Devices

- Have operating instructions readily available.
- Have local/provincial emergency telephone numbers readily available (i.e. police, SAR, ambulance, hospital, helicopter services, fire department, etc.).
- Ensure batteries are replaced/maintained regularly.
- Officers must contact his/her Supervisor immediately if equipment is lost, damaged or inoperable.

vi) Have Required Training

All employees who will be working or travelling on ice will complete training that provides:

1. Hazard identification and avoidance
2. Ice thickness testing and load capacity determination
3. Basic extraction and emergency procedures in response to going through the ice
4. Self rescue skills once out of the water
5. Cold water survival
6. First Aid treatment

vii) Have an Emergency Response Plan (ERP)

In the event an accident does take place, having a detailed ERP may mean the difference in successful rescue or death. However, simply having an ERP in place is not sufficient; all staff must be thoroughly familiar with their ERP and be familiar enough with it to implement if required. This topic is covered in more detail in Section #6.

ERPs will be developed for each Detachment Office. ERPs will be reviewed during regular safety meetings, as well as prior to each season (i.e. snowmobile season, boating season, etc.).

3. MANDATORY REQUIREMENTS

*Occupational Health and Safety Regulations, 2012
under the Occupational Health and Safety Act*

Emergency plan risk assessment

38. (1) An employer shall conduct a risk assessment in a workplace in which a need to rescue or evacuate workers may arise.

(2) Where the risk assessment required by subsection (1) shows a need for evacuation or rescue, appropriate written procedures shall be developed and implemented and a worker assigned to coordinate their implementation.

(3) Written rescue and evacuation procedures are required for but not limited to

(f) work on or over water

Lifesaving equipment

464. (1) Appropriate lifesaving equipment shall

(a) be provided and maintained for the rescue of a worker in danger of drowning; and

(2) A throwing line fitted to a lifebuoy or similar equipment shall be of suitable size and length and made of buoyant material.

(3) Lifesaving equipment shall meet the requirements of standards acceptable to the minister.

Because of the nature of snowmobiling and ATV use in Newfoundland and Labrador, any person operating a snowmobile or ATV can cross a large range of frozen water bodies at any given time. This can range from a large lake, to a small stream, to a bog hole. Quite often officers will have to travel off marked, groomed or established trails. **Given the geographic uncertainties, the use and wearing of issued PPE (described below) will be mandatory during all snowmobile and ATV patrols applicable to this procedure.**

i) Equipment

Issued PPE:

- Flotation Snowmobile Suit -

Mustang Survival Ice Rider MJ6270CB IRX Extreme Jacket and MP4231CB Bib Pants

- Combination of jacket and bib pants provides adequate buoyancy and hypothermia protection for enforcement officer wearing fully equipped duty belt, soft body armour and all associated clothing. The suit will also provide protection against hypothermia

- if submerged in water, and quickly drains when out of the water.
 - How Ice Rider works: *"the unique Ice Rider Airsoft Foam liner provides thermal insulation in icy cold water protecting you against the onset of hypothermia and floats you horizontally so you can easily pull yourself back onto ice like a seal. Once out of water, a unique mesh design quickly drains water away from your body while the foam continues to provide insulation from the cold"*(www.mustangsurvival.com).
 - **Staff are required to wear flotation snowmobile suit at all times while travelling on snowmobile/ATV patrols applicable to this procedure. Staff are permitted to wear MP4231 bib pants in combination with FWED winter parka (i.e. "down-filled jacket") during extreme weather conditions.**
- Ice Picks
 - Ice picks consist of:
 - Tough, durable plastic construction
 - Generous lanyard worn around the neck for split second access
 - Hardened steel spikes that can go deep into the ice and hold tight for quick escape
 - **Staff are required to wear ice picks at all times while travelling on snowmobile/ATV patrols applicable to this procedure. Ice picks must be worn around the neck and be readily available for easy access.**
- Rescue Throw Bag
 - Soft buoyant throw rope that complies with Canadian Coast Guard equipment requirements (minimum length of 50').
 - Officers will receive instruction in proper use of throw bags and must review directions printed on throw bag (i.e. throw, rethrow, and restuff). See Appendix #2 for rescue throw bag instructions.
 - Throw bag should not be left on snowmobile when snowmobile is not in use (and stored outdoors) for longer periods of time to ensure throw bag remains fully functional and is not damaged by natural elements (i.e. freezing rain, sun, etc).
 - When throw bags are purchased from the manufacturer they are not ready for deployment/use. Officers must pull all rope out of a throw bag and repack (as per manufacturer's instructions) to ensure it is ready for deployment if/when needed.
 - **Staff are required to attach rescue throw bag to snowmobile/ATV handlebars at all times while travelling on snowmobile/ATV patrols applicable to this procedure. In case of walking on ice, throw bag must be readily accessible.**
- Other issued equipment required:
 - First Aid kit
 - communication devices (cellular phone, satellite phone, SPOT unit, etc)
 - extra multipurpose/heavy duty rope (minimum 50') capable of towing snowmobile
 - "Lifebouy" flotation rope (minimum 50')
 - collapsible shovel
 - waterproof bag (containing extra clothing)
 - survival kit
 - axe (with handle loop/strap)

- measuring device (minimum 12"; i.e. ruler, metal tape, etc.)
- water-resistant flashlight
- waterproof matches/fire starter (with instructions)
- emergency blanket
- high energy food (e.g. bars, nuts, snacks)

ii) Training

All officers will be required to complete the following training (with recertification as required):

- Standard First Aid
- Wilderness Survival
- Snowmobile/ATV Training
- Ice Rescue Training
- Cold Water Survival Training

iii) Field Level Risk Assessments (FLRA)

Covered in further detail in Section #5.

4. SAFE SNOWMOBILE OPERATION

Note – this includes all snowmobiling patrols, and not just while travelling on ice.

General Snowmobile Safety

- Snowmobiles should ride single file and not side-by-side. This will also help when there is two-way traffic on a snowmobile trail.
- Follow the snowmobile in front of you at a safe distance that would allow you to stop or slow down in a safe manner. A good rule to follow is the 3 second rule: When the person in front of you passes an object, note where it is and start counting. By the time you arrive at the same object, you should have counted no less than three seconds. If you counted to less than three, you need to allow more space between the riders in front of you to ensure time to stop safely. Also take into account that icy conditions will reduce stopping ability.
- Use appropriate hand signals when driving with others before stopping, slowing down or turning. Exercise caution on corners and hills, and always remain on the right-hand side of the trail. (see Appendix #3 for snowmobiling hand signals)
- Speed is a major factor in many snowmobile collisions/accidents. Always keep the speed of your snowmobile slow enough to ensure you are in control and operating safely.
- You should always ride at a speed in which you can stop within your line of sight. Drive slower especially when near other machines, people, trees, animals and other objects and on icy conditions (see Appendix #4 for further information on “snowmobile speed”)

Defensive Snowmobiling

Engine noise and your helmet may impair your hearing, so be on extra alert for danger. Never assume what another snowmobiler will do. Officers should watch out for:

- Obstacles hidden by the snow
- Trees and branches on the trail
- Slow grooming equipment
- Oncoming snowmobiles
- Other trail users (skiers, walkers)
- Wildlife
- Trail wash outs and flooding
- Snow banks and moguls
- Road and railway crossings
- Unexpected corners, intersections and stops
- Bridges, open water and unsafe ice
- Logging operations
- Icy/slippery conditions

Dealing with Fatigue

The effects of the sun, wind and motion of the snowmobile can cause rider fatigue. This is especially true on longer trips. When the human body is tired, concentration and judgment are impaired, leading to potentially dangerous situations while riding. When you are fatigued your ability to help someone

or yourself in an emergency situation can be drastically reduced. To minimize potential for fatigue as well as its effects, officers should proceed as follows:

- Dress for the weather – the more energy your body has to exert trying to keep itself warm will only quicken the onset of fatigue.
- Keep your body fueled and hydrated – giving your body enough food and water is important, especially during outdoor activities.
- Take breaks – always remember to take breaks while riding. It is never a good idea to stay on your snowmobile for too long.
- Know your limit – stay within your personal limits.

Trail hypnosis is a condition resulting from rider fatigue. It occurs when a tired rider begins to lose concentration and focuses only on what is directly in front of their snowmobile. This causes them to zone everything else out of their attention, increasing the potential for an accident.

Dressing for Snowmobiling

Officers should dress in layers of clothing while snowmobiling. This enables an officer to add or remove clothing layers in order to adapt to changing conditions. Warm mitts/gloves, warm boots and insulated helmet are recommended. Thermal layers will allow your body to retain heat while releasing moisture. Exposure to extreme cold can lead to frostbite and hypothermia. Body temperature can be affected by outside air temperature and wind speed.

5. FIELD LEVEL RISK ASSESSMENTS (FLRA)

Due to local environmental factors, staff are required to conduct FLRA on a continuous basis. Officers must consider alternate routes before crossing frozen bodies of water. Supervisors are to instruct staff to regularly conduct assessments of ice conditions and associated risks. A good general rule to follow is *"If you don't know, don't go."*

Working and Travelling Over Ice

Where the thickness of any ice is below the minimum established requirements for safe work and travel, no employee shall work or travel on that ice (as per Appendix #1).

Preparation for work on ice over water includes taking into account your physical condition, the weather, your clothing, your equipment and your procedures. Anyone working on ice should be in good enough condition to deal with and react to an emergency situation (falling into the water or rescuing someone who has). Clothing should provide protection from low temperatures, but not restrict the ability to swim or float. Equipment for testing and measuring ice thickness as well as items to use in rescue, including self-rescue, are critical to any work on ice. Last, but not least, planning for the outing by assessing the risks and mitigating the hazards is paramount.

When travelling on ice cannot be avoided, always be sure to check the conditions and test ice thickness before-hand as conditions can change in a matter of hours. Many fatalities involve snowmobiles breaking through the ice or driving into open water. Anytime you travel on ice you put yourself and your passengers at risk. Stopping distance will greatly increase when travelling on ice. Always travel on ice that is new, hard and clear. Never travel on ice that is slushy, weak, near moving water or has thawed and refrozen.

Before beginning work operations on a frozen body of water, the overall condition of the ice must be assessed to ensure the ice can support the activity. This requirement recognizes that ice conditions vary and can be influenced by temperature fluctuations, changing water levels, moving water, currents and snow loads.

Assessing the situation

- Look closely at the ice before setting foot on it. The strongest ice will appear a clear blue or blue black and be free of snow, air bubbles or debris. Weak ice (also known as 'rotten ice') is white, brittle, mixed with snow, or filled with air bubbles.
- Consider factors such as water currents and depth, snow cover, and temperature, which can all effect ice strength. For large bodies of water it will take two or more weeks of below freezing temperatures to make ice capable of holding a large amount of weight.
- New ice is stronger than old ice.
- Looking at the surface is not a good way to gauge ice thickness. The only way to verify the thickness is by cutting a hole in the ice.

Testing Ice for Thickness

- Observe the ice to see if you can see cracks, breaks, holes, open water, weak spots or abnormal surfaces and to identify the color(s) of the ice. You cannot rely on your eyesight alone. This is just an initial look to help you to decide if it is safe to proceed to the next step of testing the ice. Know your ice color meanings (see Appendix #1).
- While testing ice for thickness ensure that you are wearing your flotation snowmobile suit.
- Have rope, throw bag, ice picks, axe, communication device(s), etc. readily available.
- If you are alone, make sure that you have one end of the rope attached securely to your person and the other end securely attached and firmly anchored (i.e. to snowmobile, tree, etc.) on shore.
- Only go on the ice if the edge of the water body is firm. If it is slushy or cracking, it is unlikely to be safe to proceed as shoreline ice is the weakest.
- Use your axe and chop the ice to determine firmness and to make sure the ice is at least 4" thick before venturing onto it.
- Ice begins to be "safe" at 4" thickness for one person. Do not walk on ice less than 4" in thickness. However, even at 9" - 10" thickness, there may be unforeseen hazards such as a flowing current underneath that is ceaselessly weakening the underside of the ice. In this instance, even the thickness is not a good indicator of safety, as the ice could collapse at any time.
- After performing your physical and visual assessment of the ice and you determine that it is safe to support your weight, walk slowly and carefully a short distance onto the ice where thickness can be further assessed. If you are working alone you should contact a fellow officer, Detachment Supervisor, Regional office, or the officer staffing the Poaching Line to let them know that you are performing this procedure before you commence walking onto the ice.
- Chip the ice with your axe to create a small hole in the ice for measuring the thickness. Use a measuring device to determine the thickness of the ice.
- Record ice thickness and location (to be shared with fellow officers working in the same geographic area).

Travelling by Foot:

- Do visual inspections to estimate the condition of the ice. Generally look for:
 - colour: blue ice is the strongest; grey ice is generally of poor quality
 - snow cover: snow has an insulating effect
 - presence of dams/control structures: generally stronger current
 - presence of cracks: intersecting cracks are the most dangerous
 - presence of open water
 - inlets and outlets: warmer water, currents
- Check the ice thickness to ensure the ice is safe.
- If travelling over the same area of ice for several hours, evaluate the surface and condition regularly to make sure it is still safe.
- Do not attempt to bridge or jump open seams.

Travelling by Snowmobile/ATV:

- The minimal effective ice thickness for river ice is 6”.
- Travel on a proven, known trail, if available. Officers must always drive defensively.
- Travel at reasonable speeds in order to see openings or large cracks in the ice in advance.
- Travelling near shoreline may be the safest practice, but not in all circumstances. However, travelling close to shore may assist in emergency response rescue procedures.
- Drivers must maintain a safe distance between them and other drivers to allow for adequate time to stop, react or maneuver should the need arise.
- Environmental conditions and driver ability may dictate safe distances and appropriate speeds
- Drivers should always drive with caution and keep in mind their safety and the safety of others.
- Routes for crossing ice must be selected so as to avoid any known hazards (e.g. mouth of stream entering a water body). In particular, caution should be used when approaching or crossing a pressure ridge, or any moving water (e.g. a river or brook with a current), or when passing a location that is known to be open and does not freeze year round.
- An ERP must be in place (see Section #6).

Travelling by Snowmobile/ATV at Night/During Extreme Weather Conditions:

- Drive at a reduced speed and avoid travelling faster than you are able to react within the area of the beam of your headlight.
- Riding at night reduces your visibility and your ability to spot hazards that may be ahead. It also reduces your ability to estimate distances.
- Wear clothing that has reflective markings so that you are more visible at night.
- Forward visibility is reduced by darkness and it is much more difficult to spot and identify potential hazards in time.
- Ensure headlights and taillights are working and free of snow.
- Always carry a flashlight for emergency signaling at night.

After assessing all associated risks, and considering experience, knowledge, training, available equipment, availability of emergency support and established procedures, there may be cases where an officer will have to disengage the planned activity when warranted.

6. EMERGENCY RESPONSE PLAN (ERP) AND PREPAREDNESS

In the event an officer accidentally breaks through the ice and becomes submersed or partly submersed in a body of water, the appropriate ERP will be implemented. Supervisors are to ensure that an ERP is in place should such an incident occur. By planning and preparing, an officer should be in better position to face an emergency situation anytime and anywhere.

While the type of anticipated local on-ice activities will dictate the content of the plan, at a minimum it must contain the following components:

- When to activate the plan
- Who to call in case of emergency (including phone numbers)
- How to call (i.e. communications options; cell vs. satellite phone, activate SOS/911 button on SPOT™ unit, etc.)
- Procedures to manage hypothermia
- Roles and Responsibilities, as well as reporting procedure for those involved

A full, detailed specific ERP will be developed and implemented by FWED within each detachment office location by the Detachment Supervisor.

All ERPs will include:

Emergency Contact Protocol

- Officer should immediately activate SOS/911 button on SPOT™ unit. If more than one officer is present at the scene of the incident, all officers should activate SOS/911 button on SPOT™ unit as soon as possible. This will trigger the SPOT call centre to immediately contact FWED.
- If time and situation permits, an officer should use either cellular phone or satellite phone (depending on geographic location) to call local emergency responders (depending on area, RNC, RCMP, or local Search and Rescue). This will trigger the emergency response.
- If time and situation permits, an officer should use either cellular phone or satellite phone (depending on geographic location) to call FWED Headquarters (709-637-2971) as soon as possible. If the incident takes place after hours, an officer should call the Toll Free Poaching Line (staffed 24/7, 1-877-820-0999).
- The officer calling should provide as much information as possible (i.e. nature of the incident, staff members involved, coordinates, any immediate danger, etc.)
- The officer staffing the Poaching Line will also initiate an internal emergency response, including contacting other staff/colleagues in the geographic area of the incident that may be able to assist in the emergency response. The officer staffing the Poaching Line will immediately call the appropriate Regional Superintendent. In absence of the Regional Superintendent, the officer staffing the Poaching Line will call the Chief of Enforcement. In absence of the Chief of Enforcement, the officer staffing the Poaching Line will call the Director of FWED.

On Site Field Response

When You Are Alone on Ice

If you get into trouble on ice and you are by yourself:

- Call for help (i.e. press “SOS/911” button on SPOT™ unit) as soon as possible.
- Reach forward onto the broken ice without pushing down. Kick your legs to push your torso on the ice. Use your ice picks/awls.
- When you are back on the ice, crawl on your stomach or roll away from the open area with your arms and legs spread out as far as possible to evenly distribute your body weight. Do not stand up. Look for shore and make sure you are going in the right direction.
- Apply appropriate First Aid and survival techniques.
- *Note: Officers should avoid working alone when travelling over ice, however there may be occasions where this is not practical. An officer in this situation should use extra caution and take the proper precautions to plan for escape (should ice conditions deteriorate). An officer is to disengage if he/she determines that working on ice is unsafe. This information should be communicated to his/her immediate supervisor immediately.*

When You Are With Others on Ice

- Rescuing another person from ice can be dangerous. The safest way to perform a rescue is from shore.
- Call for help. Consider whether you can quickly get help from bystanders or trained professionals (police, fire fighters or ambulance).
- Check if you can reach the person using a long pole or branch from shore – if so, lie down and extend the pole to the person.
- If you go onto ice, carry a long pole or branch to test the ice in front of you. Bring something to reach or throw to the person (e.g. pole, throw bag, line or tree branch).
- When near the hole, lie down to distribute your weight and slowly crawl toward the hole.
- Remaining low, extend or throw your emergency rescue device (pole, throw bag, line or branch) to the person.
- Encourage the person to self rescue – tell the person to (a) reach as far up on the ice edge as possible using the ice picks; (b) kick in order to keep afloat (kicking may enable the person to swim up onto the ice); and (c) use a walking motion with elbows.
- Have the person kick while you pull them out.
- Move the person to a safe position on shore or where you are sure the ice is thick. Signal for help again.
- Apply appropriate First Aid and survival techniques.

When Using a Safety Line/Throw Bag (i.e. when travelling by foot)

- First and foremost do not become a victim yourself. Do not get too close to the hole.
- Distribute your weight by sitting down or lying on your stomach.
- Take up any slack on the safety line being used to prevent person from slipping under the ice cover.
- Encourage the person to self rescue – tell the person to (a) reach as far up on the ice edge as

possible using the ice picks; (b) kick in order to keep afloat (kicking may enable the person to swim up onto the ice); and (c) use a walking motion with elbows.

- Tell the person to reach as far up on the ice edge as possible using the ice picks and kick in order to keep afloat (kicking may enable the person to swim up onto the ice). At the same time, use a walking motion with elbows.
- Using a safety line, pull the person along the safest route. Be careful not to be pulled towards the hole.
- If possible, never leave a person who has fallen through the ice alone while you go to get help. Call for help using the appropriate communications device. If you must leave, find a board, log or something similar for the person to hold on to until help arrives.
- Apply appropriate First Aid and survival techniques.

If Not Using a Safety Line (i.e. when travelling by snowmobile or ATV)

- First and foremost do not become a victim yourself. Do not get too close to the hole.
- Distribute your weight by sitting down or lying on your stomach.
- Encourage the person to self rescue – tell the person to (a) reach as far up on the ice edge as possible using the ice picks; (b) kick in order to keep afloat (kicking may enable the person to swim up onto the ice); and (c) use a walking motion with elbows.
- If the person is unable to self rescue, use a reach rescue method, if possible a pole or branch, etc.
- If reach rescue is not possible, use a throw rescue method (e.g. throw bag, rope).
- Once the person is on the ice surface, have them stay prone and roll away from the hole.
- If possible, never leave a person who has fallen through the ice alone while you go to get help.
- Call for help using the appropriate communications device. If you must leave, find a board, log or something similar for the person to hold on to until help arrives.
- Apply appropriate First Aid and survival techniques.

7. ADDITIONAL RESOURCES

Staff are to familiarize and educate themselves on the latest techniques and available information:

- Appendix #1 – Information about “Ice” (types, thickness, etc)
- Appendix #2 – Rescue Throw Bag Instructions
- Appendix #3 – Snowmobiling Hand Signals
- Appendix #4 – Information on Snowmobile Speed
- Appendix #5 – Hypothermia and Cold Water
- Appendix #6 – Links to Technical Specifications and Information – “Mustang Ice Rider Suit”

APPROVED BY:



JAMES MALONEY
Director

Date: 2013-10-07

Sources:

Canadian Red Cross
Department of Fisheries and Oceans (Canada)
Environment Canada
Government of British Columbia
Government of Manitoba
Government of New Brunswick
Government of Nova Scotia
Government of Ontario
Government of Prince Edward Island
Government of Saskatchewan
Mustang Survival
World Famous of Canada

Appendix #1 – Information about “Ice” (types, thickness, etc)

Sources – Red Cross, New Brunswick Ministry of Natural Resources, Environment Canada

Blue Ice

This is the strongest ice, formed by a quick drop in temperature and does not contain any other particulate, air bubbles, or snow. It is clear looking, translucent and has a reflective aspect. Its color can be described as black, green or blue.

Opaque (White) Ice

This type of ice contains a mixture of ice, bubbles, snow or other particulate. It is milky in colour and generally has a textured surface. It is considered to be 50% weaker than Blue Ice.

Candle or Honeycomb Ice

This ice is formed by repeated temperature changes. It is gray or silver in colour and has a unique texture. It is generally crumbly and easily fractures into long shards (e.g. candles). This ice is usually found in the spring or after repeated warm/cold spells. It has minimal structural integrity and is not consider capable of supporting any load.

Blue Ice		Maximum Load Capacity
Inches	Centimeters	
< 4	< 10	Unsafe for one person
4	10	One person, multiple employees must remain at least 3 meter apart
7	18	One person with snowmobile and sled
13	33	Light Duty vehicles separated by a safe driving distance (i.e. truck)

Opaque/White Ice		Maximum Load Capacity
Inches	Centimeters	
< 8	< 20	Unsafe for one person
8	20	One person, multiple employees must remain at least 3 meter apart
14	36	One person with snowmobile and sled
26	66	Light Duty vehicles separated by a safe driving distance (i.e. truck)

Ice Factors

Many factors affect ice thickness including: type of water, location, the time of year and other environmental factors such as:

- Water depth and size of body of water.

- Currents, tides and other moving water.
- Chemicals including salt.
- Fluctuations in water levels.
- Logs, rocks and docks absorbing heat from the sun.
- Changing air temperature.
- Shock waves from vehicles traveling on the ice.

Ice Colour

The colour of ice may be an indication of its strength.

- Clear blue ice is strongest.
- White opaque or snow ice is half as strong as blue ice. Opaque ice is formed by wet snow freezing on the ice.
- Grey ice is unsafe. The grayness indicates the presence of water.

Check with local authorities before heading out. Avoid going out on ice at night.

Sea Ice

Ice thickness versus ice strength

This table provides the safe load for a given ice thickness of

- fresh ice (lake and river ice) and
- sea ice (St. Lawrence River, Gulf of St. Lawrence, etc.)

SAFE LOAD OPERATION – Sea Ice

One person at rest	≥ 5"
0.4 ton moving slowly	≥ 7"
10 ton tracked moving slowly	≥ 26"
13 ton aircraft parked	≥ 40"

Constant visual assessment of ice is essential during activities on ice.

Factors to consider in assessing ice include the fact that the underside of ice floating on water will be close to the melting point, and the upper surface of exposed ice will be closer to air temperature. Snow acts as an insulator and also imposes a load on ice. Hence if ice is covered by snow early in the season, it may never form a thick solid layer and could remain dangerous for the entire season, no matter how much snow cover there is. If there are large variations in the depth of snow on the ice layer, there may be corresponding large variations in ice strength. On the other hand, a thin layer of about 10 cm of snow can be protective for ice by absorbing energy of vehicles and also by protecting

ice from solar radiation; such a layer is recommended for ice crossings.

Clear ice formed by the freezing of water is about twice as strong as snow ice that forms when wet snow freezes on ice. Visual inspection is essential and *colour* is helpful in assessing ice quality, with blue or clear ice being strongest. White opaque snow ice is weaker since it contains a lot of air, and grey ice is unsafe because it includes water from melting. Other considerations in visual inspection include cracks. Dry cracks of less than 0.3 cm depth are not considered hazardous. A single crack of 2.5 cm reduces load capacity by one-third and intersecting cracks by one-half. Wet cracks penetrate the ice and reduce load bearing by half for a single crack and down to one-quarter for two intersecting cracks. Travel over wet ice should generally be avoided. Furthermore, if wet ice becomes dry it could indicate impending immediate failure due to honeycombing.

Temperature fluctuations can reduce ice strength. A sudden drop, such as a very cold night after a warm day, can weaken ice by 50% for 24 hours, and to a lesser extent for some days. A similar weakening is observed when clearing snow from ice, which under cold conditions lowers surface temperature by removing the insulating layer.

Currents and springs affect the flow and temperature of water and can result in thin ice that is deceptive since on the surface it appears the same as adjacent ice. Before crossing ice, currents and springs need to be identified; typically they could occur at inflows and outflows of lakes and at bends, shallows, and tributaries in rivers. A detailed knowledge of the qualities of the bodies of water concerned, especially rivers, is necessary prior to considering any activity on the ice.

Another factor that affects ice strength is *static load*, such as a stationary vehicle or fishing hut, which can reduce load-bearing capacity by 50%. Ice that will safely support a slow moving vehicle could give way under a vehicle that is stopped, so it is recommended that vehicles be parked at least five lengths apart. Static load also needs to be considered for activities such as ice fishing if huts are used. Radial cracks, sagging, continuous cracking or appearance of surface water are visible signs of impending ice failure; such signs could be masked by snow on the ice.

Measuring ice strength by its thickness is a useful – though not infallible – way to assess ice strength. The main issue that affects interpretation of such measurements is variability in thickness, so that they must be considered only in conjunction with other factors. In the presence of snow ice, the minimum thickness would need to be doubled to 30cm, while in the presence of a single dry crack, to about 40 cm, and for a single wet crack, 60 cm. Intersecting wet cracks on snow ice could raise minimum thickness for travel to 120 cm. Practical recommendations for ice are available at government sites for Alberta and Northwest Territories (Alberta Human Resources and Development, 2003; Northwest Territories Resources, Wildlife, and Economic Development Department, no date). Recommendations differ and the evidence base is not provided in these sources. Users of tables must be cautious since many are based upon ideal ice conditions; less favourable conditions can greatly reduce load-bearing capacity.

The ice environment must be considered a cold-water environment where immersion is possible at any

time. Visibility was a key factor in many snowmobile immersion fatalities in Canada, since most occurred late in the day or during the night; a 25-year review of snowmobile fatalities in Sweden had similar findings (Ostrom & Eriksson, 2002). Current was another factor; rivers and lake outflows can result in open holes or thin ice, and are never really safe for walking, let alone travelling at high speeds on a machine that could weigh half a ton with two riders. While trailside monitoring has been shown to be effective in reducing snowmobile injuries and deaths in one region of Ontario, another study indicated that this would be relatively ineffective overall since most incidents did not occur on designated trails (Rowe et al 1994, Stewart & Black 2004).

In summary for motorized travel on ice, essentials include good lighting, preferably daylight, and avoidance of anything that impairs alertness, including alcohol and fatigue. Furthermore, full protection with safety equipment is essential. Travel at night should be avoided unless the return route has already been verified on foot during daylight and carefully marked.

Appendix #2 – Rescue Throw Bag Instructions

Source - World Famous of Canada

To Throw:

- Loosen drawstring
- Grasp rope hand loop at drawstring end with non-throwing hand and pull out 2' of line and hold securely
- Hold bag with throwing hand at centre of webbing and buckle strap
- Swing throw bag with smooth underhand motion and release towards target

To Rethrow:

- Fill bag with water to add weight
- Rethrow bag – you do not have time to restuff the bag

To Restuff:

- Undo belt buckle. Open draw string
- Hold bag and rope tail in one hand
- Put second hand into the bag and pull rope into the bag using short jerks. Do not coil
- Leave rope hand loop on outside of bag. Tighten draw string over loop knot and close buckle.

NOTE: THROW BAGS “OFF THE SHELF” ARE NOT READY FOR DEPLOYMENT AND MUST BE RESTUFFED

Appendix #3 – Snowmobile Hand Signals

Hand Signals

There is a very simple system of signals that all snowmobilers should know and use when riding on the trails. These hand signals have been approved by the Canadian Council of Snowmobile Organizations (CCSO), and they allow you to convey essential information to other snowmobilers who are following or approaching you.

Right Turn



Left arm raised to shoulder height, elbow bent, forearm vertical, and hand open.

Left Turn



Left arm extended straight out from the shoulder and pointing in the direction of the turn.

Slow Down



Left arm extended out and down from the side of the body with a downward flapping motion as a warning signal.

Last Snowmobile



Raise the forearm and make a fist at the shoulder.

Oncoming Snowmobile



Left arm raised to shoulder height, elbow bent and forearm vertical, wrist bent, move the arm from left to right above the head, indicating the right side of the trail.

Snowmobiles Following



Arm raised, elbow bent, and thumb pointing backward, like a hitchhiker, move the arm from front to back above the shoulder.

Stop



Arm raised vertically and open hand

Appendix #4 – Information on Snowmobile Speed

With snowmobile headlights that illuminate 200 feet (61 meters) ahead and 158 feet (48 meters) required for stopping time, you should be able to stop 42 feet (13 meters) from an obstacle, a very safe distance unless the trail is icy, which will require a longer stopping distance.

At 40 mph (65 km/hr) or below, you are normally not over riding your headlights.

In the experience of law enforcement officers, many riders operate their snowmobiles between 30 and 45 mph (50 and 70 km/hr) at night. Between 45 and 50 mph (70 and 80 km/hr), snowmobiles can start over riding their headlights.

At 50 mph (80 km/hr) you would travel about 110 feet (33.5 meters) before you started to apply the brake. You would then be 90 feet (27 meters) from the obstacle. Since you would need at least 80 feet (24 meters) to stop the machine or make an appropriate move, traveling at 50 mph (80 km/hr) is dangerous.

Speeds of more than 50 mph (80 km/hr) at night are extremely dangerous. At 65 mph (105 km/hr), you would have already traveled 143 feet (43.5 meters) by the time you ever start to apply the brake. You would still need about 100 feet (30.5 meters) to stop, but would be only about 57 feet (17 meters) from the obstacle by then. At this speed, it would be almost impossible to stop in time to avoid an obstacle.

You should be aware that there are other factors, such as fog, snowstorms, fatigue, snow dust, icy trails, and ice on lakes or rivers that will affect (slow) your reaction time and increase your stopping distance. Always reduce your speed when operating in these conditions.

Appendix #5 – Hypothermia and Cold Water

Sources – Canadian Red Cross, Canada Safety Council



Hypothermia and Cold Water

Water in Canada is cold. Be prepared!

In cold weather you should wear multiple layers of dry clothing, a wind or waterproof outer layer and a PFD or lifejacket.

What happens?

- Your skin and blood temperature in your arms and legs drops quickly
- You start shivering
- You may have trouble breathing and be unable to use your hands
- The temperature of your heart, brain, and other organs drops gradually
- You may become unconscious, and if you are in the water, you may drown
- If your body temperature drops further, you can die of heart failure

What are the signs?

- Continual shivering
- Poor coordination of movements
- Slowing down and falling behind
- Numb hands and feet leading to stumbling and clumsiness
- Dazed, confused, careless or forgetful behavior
- Slowed or slurred speech; slow response to questions
- Dilated pupils
- Decreased attention span

Precautions Anyone can Take

The Canada Safety Council recommends preparing yourself against hypothermia if you are working outside or taking part in outdoor recreational activities:

- Wear a warm hat. Most body heat is lost through the head.
- Wear layered clothing. Proper layers will allow warm air to stay trapped but do not trap perspiration next to the skin.
- Protect your feet and hands. Wear loose waterproof boots. If the boots have felt liners, carry an extra pair to replace damp ones. Mittens warm the hands more effectively than gloves. Carry an extra pair of these too.
- Prevent dehydration and exhaustion, which can lead to hypothermia. Drink plenty of non-alcoholic fluids. Pace yourself when doing vigorous activity.
- Stay fit through good physical conditioning and good nutrition. People who are fit are less susceptible to hypothermia. And don't let yourself become weakened through fatigue.
- Try to stay in a heated environment, but not so hot as to cause excessive sweating. You risk hypothermia when you seek to cool down by leaving a hot environment for a cool one.
- Eat high energy food, such as nuts and raisins.
- Avoid alcohol, coffee, tea and tobacco. They can cause heat loss.
- If you are traveling (on the road or in the wilderness) carry emergency supplies.

Sudden heart attacks increase during a cold snap. Cold air can cause blood pressure to go up, especially when skin is exposed. Shivering is a serious warning sign to seek a warmer, sheltered place.


Beware of the Symptoms

Initial Signs (Mild Hypothermia)

- Bouts of shivering
- Grogginess and muddled thinking
- Breathing and pulse are normal

Danger Signs of Worsening Hypothermia (Moderate Hypothermia)

- Violent shivering or shivering stops


- 
- Inability to think and pay attention
 - Slow, shallow breathing
 - Slow, weak pulse

Signs of Severe Hypothermia

- Shivering has stopped
- Unconsciousness
- Little or no breathing
- Weak, irregular or non-existent pulse

What to do if you Suspect Hypothermia

If you suspect hypothermia, take measures to prevent further heat loss and get medical help as quickly as possible. Continue the warming efforts even if there is little or no pulse or heartbeat. Severe hypothermia can be mistaken for death.



Move the casualty to a dry, warm location if possible, or provide protection from the wind. Keep the person in a horizontal position. If you can't replace wet clothes with dry ones, cover the wet clothes with warm dry clothing or blankets, and place something warm and dry under the casualty. If the person is conscious, supply a warm drink, but avoid alcohol and caffeine.

Knowing first aid is a tremendous help. But most deaths from hypothermia can be prevented if you use common sense.

Wear Layers to Keep Warm

Inadequate clothing lets the warmed air around the body escape. Proper clothing and protection trap the warm air around the body. The key is to keep warm and dry.

The first layer lets the skin breathe. Underwear, socks and glove liners of polypropylene or knitted silk lets perspiration escape from next to the skin. The second layer absorbs perspiration without allowing heat to escape. Wool is ideal because it stays warm even when wet. It also comes in many thicknesses. The third layer traps heat in, and keeps water or dampness out. A quilted coat filled with down or a lightweight microfibre is ideal. If it's not waterproof, wear a water-resistant shell or windbreaker.

**Appendix #6 – Links to Technical Specifications and Information –
“Mustang Ice Rider Suit”**

- Mustang Survival – www.mustangsurvival.com
- MJ6270CB IRX Extreme Jacket -
<http://www.mustangsurvival.com/recreational/mj6270?country=23>
- MP4231CB Bib Pants -
<http://www.mustangsurvival.com/recreational/mp4231?country=23>

Giles, Wayne

From: Maloney, James
Sent: Thursday, September 19, 2013 3:44 PM
To: Giles, Wayne
Cc: McGinn, Jason
Subject: RE: Travelling and Working on Ice
Attachments: image001.jpg

Wayne,

Thank you very much for your input, we will make the suggested changes. Once the Policy has been finalized we will send you a copy.

Jim

James P. Maloney
Director



Fish and Wildlife Enforcement Division
 Department of Justice
 Government of Newfoundland and Labrador
 115 Riverside Drive
 P.O. Box 2006
 Corner Brook, NL A2H 6J8
 e. JamesMaloney@gov.nl.ca
 t. 709-637-2972
 f. 709-637-2975

w. www.stoppoaching.ca
 Report Poachers – 1-877-820-0999

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From: Giles, Wayne
Sent: Thursday, September 19, 2013 3:37 PM
To: Maloney, James
Cc: McGinn, Jason
Subject: Travelling and Working on Ice

Jim,

I looked at the draft you provided and it is very good job on this policy. Also appreciate the video of the testing you performed on the ice rider suit, thank you. I do have a couple of minor suggestions;

- Page 6- Responsibilities of supervisor – include, ensure defective equipment is replaced.
- Page 18- Appendix # 1 – the left column inches and right column cm? Should be more obvious.

Wayne Giles
 Service NL

Occupational Health and Safety Officer III (Fisheries)
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9/20/2013

Giles, Wayne

From: Maloney, James
Sent: Thursday, September 19, 2013 3:44 PM
To: Giles, Wayne
Cc: McGinn, Jason
Subject: RE: Travelling and Working on Ice
Attachments: image001.jpg

Wayne,

Thank you very much for your input, we will make the suggested changes. Once the Policy has been finalized we will send you a copy.

Jim

James P. Maloney
Director



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From: Giles, Wayne
Sent: Thursday, September 19, 2013 3:37 PM
To: Maloney, James
Cc: McGinn, Jason
Subject: Travelling and Working on Ice

Jim,

I looked at the draft you provided and it is very good job on this policy. Also appreciate the video of the testing you performed on the ice rider suit, thank you. I do have a couple of minor suggestions;

- Page 6- Responsibilities of supervisor – include, ensure defective equipment is replaced.
- Page 18- Appendix # 1 – the left column inches and right column cm? Should be more obvious.

Wayne Giles
Service NL

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9/20/2013

Tab C - FWE report “Field Testing of Flotation Clothing” regarding the PPE



Fish and Wildlife Enforcement Division (FWED)
Field Testing of Flotation Clothing
July 23, 2013

Present:

Sheldon Anstey – A/Chief of Enforcement (test subject)
Jason McGinn – Senior Policy Analyst
Craig McCarthy – Firearms, Training and Equipment Specialist

Location: Deer Lake Boat Launch

Parameters:

- Flotation Clothing being tested: Mustang Survival Ice Rider (Men's) Size XL – MJ6270 IRX Extreme Jacket and MP4231 Bib Pants
- Test Subject – dry weight, dressed in full uniform including pants, shirt, inside shirt, fleece jacket, "Baffin" winter boots, mitts, underwear, socks = 219.5 lb
- Subject wearing uniform (described in first bullet) + soft body armour + duty belt + full Ice Rider suit = 240 lb
- Other information:
 - PPE – Fully equipped duty belt (9lb 14oz) + Soft body armour (4lb) = 13lb 14oz
 - Air temperature – approx. 22 °C

Full Uniform + PPE + Ice Rider Pants and Jacket

Test subject submerged himself in water wearing the full uniform, personal protective equipment (PPE) and the green Ice Rider suit. This represents the maximum weight that a fully dressed FWED Officer would wear when conducting winter enforcement activities on snowmobile. As shown in video file MVI_2430, the suit took quite a bit of time to completely fill with water. Subject opened jacket zipper and submerged himself (1:24) to ensure suit was filled with water. It was observed that subject had difficulty purposely submerging himself in water (see video file MVI_2431). Subject easily floated on his back (1:54) and on stomach (1:58). When he was in fact able to forcefully submerge himself in water, he would quickly rise to the surface (as seen at 3:11 and 3:26). Subject had no difficulty swimming in the suit while remaining buoyant (2:43). Subject could float on his back for extended periods of time

As shown in video file MVI_2443, the suit drained very quickly after exiting the water. After "completely" draining the jacket it weighed 4 lb 13oz, approximately 2 lb more than dry weight (compared to the fleece jacket after "draining" weighing nearly 10 lb).

Full Uniform + PPE + Ice Rider Pants (no jacket)

After removing the Ice Rider jacket and the black FWED fleece, subject again entered the water wearing just as the ice rider pants (video file MVI_2443 at 1:53). As seen in the video, the subject stayed completely buoyant wearing just the Ice Rider pants. The subject's lower body remained very buoyant, while the subject's chest/torso also remained buoyant (possibly because the pants have a high bib). When purposely submerging himself in the water (3:01), the subject came back to the surface feet first, but the subjects upper body also came to the surface shortly afterwards.

Exiting Water via Floating Wharf Wearing PFD

The subject tested the horse shoe collar style PFD using the Ice Rider suit. The purpose of this was not to see if subject would float (as that was shown wearing the Ice Rider suit only). Here, we wanted to simulate a person trying to exit the water and getting up on the ice. As seen in video file MVI_2438, a floating dock was used for this. Subject had difficulty staying on his stomach (0:26) wearing the PFD. The head and shoulder areas were very restricting to movement such as swimming or a "pulling" action. As shown in the video, the subject was unable to pull himself up on the wharf (0:49).

No PFD

The same scenario was tested with just the Ice Rider Jacket and Pants (without a PFD), as shown in video file MVI_2439. Here, while remaining completely buoyant, the subject had no difficulty pulling himself up on the wharf (i.e. "ice").

Summary

- Test subject was completely buoyant wearing full uniform, PPE, Ice Rider jacket, and Ice Rider Pants (maximum equipment officer would wear during winter enforcement work)
- Test subject was completely buoyant wearing full uniform, PPE and Ice Rider Pants (no jacket)
- It was not necessary to test buoyancy without soft body armour or duty belt as subject was completely buoyant while wearing these items
- Subject was unable to exit the water to the wharf wearing inflatable horse shoe collar PFD, but able to when not wearing it

August 13, 2013

Full Uniform + PPE + Ice Rider Pants + Down-filled Jacket + Snowmobile Helmet

- Down-filled jacket model – "Canada Goose Constable Parka 4071M"
- Down-filled jacket dry weight = 3lb 8oz

As seen in video file MVI_2642, test subject remained completely buoyant. Using the ice picks, test subject was mostly able to pull himself up on the wharf (approx. 18" above water surface). Test subject submerged himself completely several times to ensure jacket was completely saturated. Jacket weighed approximately 6lb 10oz after being submerged in the water. Test subject felt that down-filled jacket may have provided more buoyancy than the Ice Rider jacket previously tested.

Full Uniform + PPE + Ice Rider Pants + 3-in-1 Jacket + Snowmobile Helmet

- 3-in-1 jacket model – "511 Tactical 3 in 1 Parka, Men's 48001"
- 3-in-1 jacket dry weight = 4lb 10oz

As seen in video file MVI_2643, test subject remained buoyant with head remaining barely above water. Test subject submerged himself completely several times to ensure jacket was completely saturated. Jacket weighed approximately 26lb 7oz after being submerged in the water. Test subject felt much less buoyant in this scenario, feeling as if he had to "self-propel" a little more to stay buoyant.

Use of Helmet

In previous tests (July 23, 2013), test subject did not wear helmet. However, during the August 13, 2013 tests, test subject wore a closed faced helmet to see what impact(s) this would have. While the helmet did not seem to have an impact on buoyancy, it did provide a number of negative impacts including:

- Communication (i.e. talking to others) was greatly reduced
- Lateral vision was restricted as the helmet does cover part of the face
- Head movement was greatly restricted
- Removing the helmet while wearing mittens is impossible (due to chin strap)
- Breathing was greatly restricted due to water build up in foam (mouth touches foam)
- In winter, test subject felt that helmet would fill with ice/snow and visor would steam up
- Overall, test subject felt that helmet added a sense of panic