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		SIGNATURE	DATE
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ISSUE/REVISION INDEX

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Issue Codes: RC = Released for Execution, RD = Released for Design, RF = Released for Fabrication, RI = Released for Information, RP = Released for Purchase, RPA = Released for Permit Application, RQ = Released for Quotation, RR = Released for Review and Comments.


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1.0 PURPOSE & SCOPE


To ensure safe working and/or traveling on or across frozen bodies of water at a NAPG project site. Disregard for ice conditions and failing to establish and follow safe practices can result in injury or fatality.

2.0 ROLES AND RESPONSIBILITIES

Project Director has the overall responsibility for establishing and ensuring compliance with this various ERP procedures.

Vale Execution Manager: has overall responsibility for establishing and ensuring compliance with this procedure.

The **Project HSE staff** is responsible for implementing and/or monitoring activities associated with this procedure.

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3.0 DEFINITIONS

ice: the solid (crystalline) phase of water – ice forms on fresh water when the surface temperature falls below 0° C or at a lower temperature if dissolved with impurities are present (e.g. sea water). While the underside of the ice cover in contact with the water will remain close to the melting temperature, the temperature of the upper surface ice will be near the surrounding air temperature.

Ice color: clear/blue ice is generally the strongest.

- White opaque ice (slush/snow ice) has a relatively high air content is weaker by (1/2 the strength than clear ice.
- Grey/black ice generally indicates the presence of water because of thawing and must be considered highly suspect as a load bearing surface. This ice will usually have a honeycombed or candled structure from the ice surface to some depth, the deeper this structure the poorer the ice.

Slush: water-saturated snow on the ice surface.

Slush ice: ice formed by freezing of water saturated snow. Slush ice only has about ½ the strength of clear/blue ice under the best of conditions, and during warm periods (>>than 0°C) may also have no load bearing strength. It is often the case that slush does not freeze to the ice below leaving a layer of water between the blue ice and the slush ice. This can be a dangerous situation and only top layer should be considered when testing. Slush ice should be avoided and not traveled if possible.

River ice: ice under which there is a constant flow of water.

Ice density: density is a measure of mass per unit volume and the higher the ice density the greater the ice strength. Clear ice has the highest density, white/snow ice is less dense and therefore has less strength.

Load bearing condition: the ice must be of the proper thickness and quality for an expected load. The ice must be water supported.


Effective thickness: the sum of the combined load bearing thickness of more than one type of ice. For example, the effective thickness of 15cm of clear/blue ice plus 10 cm of slush ice is (15cm+ 10cm x1/2) =20 cm.

4.0 REQUIREMENTS

4.1 General:

Supervisors shall not assign a task involving Ice Work to any person who has not reviewed the Ice Work/Travel Procedure. Those who are not trained in ice work must be accompanied by a qualified/competent person. A job hazard analysis must be prepared and reviewed with all workers assigned to ice work.

Spotters must be certified in Emergency First Aid or higher.

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Snowmobile certification is required for the operator, if snowmobile use is required.

Those working/travelling on ice shall review the presentation for Ice travel/ work.

The Emergency Response Team (ERT) Incident Commander (IC) shall be notified prior to all ice testing and work activities prior to initial ice access.

Working alone on or over ice is strictly prohibited.


Ice testing for safe conditions must be undertaken by personnel knowledgeable of the hazards involved and of practices and procedures necessary to carry out the task safely.

Ice Conditions shall be re-tested at least every 2 weeks, or more frequently as required.

Note: Anytime there is a significant change in the weather conditions, especially after a sudden drop in temperature, a period of warm temperatures, a heavy snowfall, periods of rain, periods of high winds or change in controlled water course levels ice testing is required.

4.2 Work/travel on ice

- Persons must be knowledgeable of the hazards involved and of the practices and procedures necessary to carry out the task safely.
- Each person shall carry a set of self-rescue “ice picks” and know how to use them.
- Personal flotation must be worn during work or travel on the ice.
- An idling light vehicle containing dry clothes must be left on shore.
- Persons must inform ERT IC and responsible supervisor (where they plan to go and when they anticipate their return.)
- Persons must be aware of the ice conditions and effectiveness thickness requirements for task load conditions of the planned activity.
- Every person must be aware of the hazards involved and the safe work practices that must be followed.
- Every person must report to their supervisor any changes to the ice conditions that Hanging ice: occurs when the water level drops and the

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ice that is frozen to the shore, or shoal and near the shore, or the shoal, will no longer be supported by the water and will therefore have little load bearing strength.

- All assigned personnel shall be knowledgeable in self-rescue techniques.

4.3 PPE

- Personal flotation device.
- Self-rescue ice picks

4.4 Ice testing

Testing ice must always be performed by at least two or more people. One person to test the ice and the other to assist with the self- rescue by utilizing the tethered rope. It is essential that all members of the ice testing be knowledgeable in self-rescue technique. Before travelling on or across the team must ensure they are properly equipped for the task and review the established safe ice testing procedures:


Ice must be tested before any personnel or vehicle are allowed onto the surface. At no time shall persons venture onto suspect bodies of water without testing. The strength of the ice is dependent on ice quality as well as thickness.

4.5 Night Travel on Ice

Night travel on ice is not safe as daylight travel because environmental changes are not as easily observable and new hazards may not be recognized. Avoid night travel on ice if possible. If it is necessary, plan your route and stay on well-traveled or previously travelled routes. For any night time travel; a Risk Assessment and Authorization from the Project Director and NAPG HSE Manager is required.


4.6 Falling through Ice

Being properly prepared with spotter/additional personnel, self- rescue ice picks and a protective full body personal floatation device or personal flotation device is critical to survival. All workers involved in ice testing or working or travelling over ice shall be aware of the actions to be taken in the event of an emergency.

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4.7 Using Heavy Vehicles on ice

HSE authorization and risk assessment must be completed for every task involving heavy vehicles prior to ice access.

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5.0 .TRAINING

Self – rescue ice pics

6.0 DOCUMENTATION AND ADMINISTRATION

Report of any emergency drill/tabletop exercise is to be submitted to the emergency prepared representative for retention purposes.

7.0 REFERENCE

ITP –VBME -0000-72-PCD-0027 ice work/travel.

NAPG-RA-SPI-0001 - Job Hazard Analysis Procedure DM#13929867

PGS-002552 – General Guidelines for the preparation and Management of Emergency Response Plan –ERP

PGS-002552 – General Guidelines for the preparation and Management of Emergency Response Plan –ERP Annex 5 standard form for a drill-

PTP-000773 Preliminary Risk Analysis and Impacts Assessment.

Newfoundland and Labrador Occupational Health and Safety

ISHA building and working safely on ice covers in Ontario.

DOCUMENT END