

Ice Rescue Technician

**New Hampshire Fire Standards and Training
FF-III
Technical Rescue Programs**

Instructor Guide

**New Hampshire
Fire Standards and Training**

Firefighter – III Ice Rescue Technician

Program delivery equipment and inventory

Classroom

Instructor Guide
Powerpoint program on CD
Laptop Computer with Projector
Manuals / Handouts as required
Extension cord and power strip

Practical

Box-1

- 1 Set of Ice Picks
- 4 Black Diamond Ice Screws
- 4 Single Pulleys
- 4 Loops of 1" Blue Webbing
- 5 Whistles
- 7 Throw Ropes – Yellow w/ Red Tracer (fluorescent yellow bag)
- 8 Locking Carabiners
- 15 Non-Locking Carabiners

- 6 Ice Rescue Suits
- 8 Water Rescue Ropes - Yellow w/ Red Tracer (blue bags)
- 5 Static Rescue Ropes – Blue w/ White Tracer (orange bags)
- 5 Instructor Jackets - Stearns Flotation Coat
- 1 LSP Cinch Collar
- 1 Backboard rigged with blue webbing
- 1 Buoyancy Torpedo rigged with blue webbing
- 4 Grab Poles
- 4 Stearns VR Model PFDs
- 1 Stokes Litter rigged with Buoyancy Collar
- 1 Rescue-Alive Sled w/ Paddle
- 1 box O.O.S. tags
- 1 3000 W Portable Generator
- 1 Portable Propane Heater

Note: If the Harmless Hazards Trailer is available this trailer can be used in place of the Rescue Programs Trailer. If that is done it has on-board heat so the breaker, and cords do not need to be sent.
Ice Rescue will always be delivered off campus due to need for open water area.

Inter-Department Communication

DATE January 11, 2011

FROM Stephen Mckenna
Technical Rescue Program Coordinator

AT (OFFICE) Fire Academy

SUBJECT Ice Rescue Technician Class
Directions to Practical Site - 1

TO Captain Andy Anderson
Captain Lenny Deane
Becky Cournoyer

Location – Sunrise Drive, Center Barnstead, NH

All distances are approximate

Right out of NHFST onto Rte. 106, follow for 1.9 miles

Right onto Rte. 4/202/9 East, follow for 3.7 miles

Left onto Main Street, Hess Gas Station is at the corner, follow for 3.4 Miles.

Left onto Rte. 28N/Suncook Valley Highway, follow for 12 Miles. Road will become narrow, watch for sharp right curve. White Oak is on left at curve.

Left onto White Oak, follow for 0.7 Miles

Left onto Narrows Road, follow for 0.7 Miles

Left onto Fire Lane Number 11, follow for 0.5 Miles

Left onto Sunrise Drive

Trailer should be backed down Sunrise drive so that equipment is accessible through back door.

Total travel time is about 40 minutes

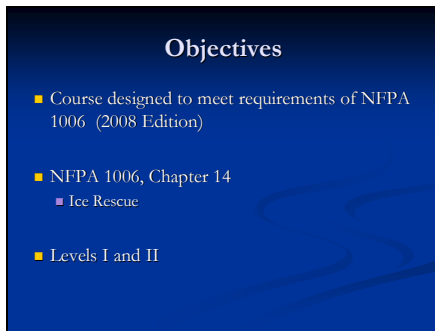
Do not park in or block any driveway unless directed to by Fire Academy Instructors. Do not approach homes and knock on doors, etc. Some residents go away for the Winter and the house has an alarm system. Our local contact for the class is Mr. John Petschauer who lives at 6 Sunrise Drive.

Slide 1



Welcome To the class
Course Roster – review, correct as needed, initial whether corrections made or not.
Objectives Sheet – have all students print name.
Eligibility Sheet – have all students print name.
Attendance Sheet – have all students fill out completely.
Hand out NHFST Manual / note taking guide.
Introduce Instructors.
Have Students introduce themselves.

Slide 2

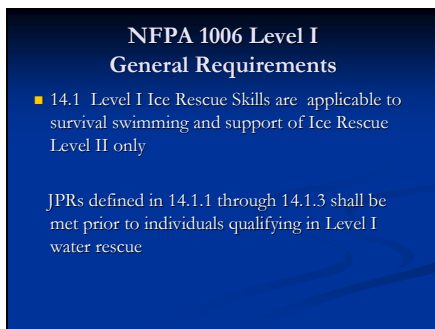


NFPA 1006 Technical Rescuer Professional Qualifications. Our programs are for the individual Firefighter or Rescue Technician which fall under 1006.

Departments follow NFPA 1670.

2008 is the latest revision. References Level I and II. Generally speaking Level I is “Operations” and II is “Technician”.

Slide 3



Level I is generally considered what used to be Awareness and Operations levels.

Operations take place from shore, bridges, etc.

Not on, or thru the ice.

No swimming ability required.

Must be equipped with Proper PPE, i.e. floatation device!

This program does not separate out Level I and II certifications.

Slide 4

NFPA 1006 Level I
14.1.1

- Support Level II operations, given a designated mission, safety equipment, props, and water body so that skills are demonstrated in a controlled environment, performance parameters are achieved, hazards are continually assessed, and emergency procedures demonstrated

This level represents the minimum capability of organizations that provide response to technical search and rescue incidents.

Requisite Knowledge – Support procedures, including search patterns, equipment set-up, operation support equipment, and communication issues.

Requisite Skills – Basic support skills including the ability to serve as an upstream or downstream safety or spotter and tend a “GO” rescuer.

Slide 5

NFPA 1006 Level I
14.1.2

- Assess ice and water conditions, characteristics, and features in terms of hazards to the rescuer and victims, given an incident scenario and ice rescue tool kit, so that conditions are estimated accurately, mechanisms of entrapment are considered, hazards are assessed, depth and surrounding terrain, are evaluated, and findings are documented

Size-up and Assessment.

Establish Command.

Activate ERP and call for Resources.

Scene Control.

Recognition of Hazards.

Rescue vs. Recovery.


Requisite Knowledge – Ice assessment, flow calculation methods, map or chart reading, local water hazards and conditions, entrapment mechanisms and human physiology and survival factors.

Requisite Skills – Determination of flow and environmental factors and the effect on victims and rescuers, and interpretation of maps and charts.

Slide 6

NFPA Level I
14.1.3

- Perform a non-entry rescue in the ice rescue environment, given an incident scenario, personal protective equipment, and ice rescue tool kit, so that rescue is accomplished and adopted policies and safety procedures are followed



SHORE BASED! NO OPERATIONS ON or THRU the ICE!

Utilize throw ropes, poles, ladders, buoyant hose, etc.


Requisite Knowledge – Types and capabilities of PPE, effects of hydrodynamic forces on rescuers and victims, physiological effects of immersion and cold water near-drowning, hydrology and characteristics of water/ice, behavior of victims, water rescue rope-handling techniques, incident specific hazard identification, criteria for selecting victim retrieval locations based on water/ice environment and conditions, hazards and limitations of shore based rescue, local policies and procedures for rescue team activation, and information on local water environments.

Requisite Skills – The ability to select PPE specific to the ice rescue environment, don PPE, identify water hazards (upstream or downstream current or tides), identify hazards directly related to the specific rescue and demonstrate appropriate shore based victim removal techniques.

Slide 7

NFPA 1006 Level II
General Requirements

- 14.2
The JPRs defined in sections
11.2
14.1
14.2.1
14.2.2
Shall be met prior to Level II
qualification in Ice Rescue



What is commonly referred to as **Technician** Level.

On and thru the ice.

In open water.

Students should be comfortable being in open water and able to swim.


NHFST has chosen not to strictly follow the NFPA matrix at this time. The matrix lays out a formula, i.e. cannot obtain Trench Rescue Technician training until have already completed Confined Space, Vehicle and Machinery, and Rope Rescue. We have elected to provide basics in FF-II/ITRS then skills specific to each program without other prerequisites.

Slide 8

NFPA 1006 Level II
11.2

- 11.2 Surface Water Rescue

NFPA 1006 Chapters 4 & 5
NFPA 1006 11.1 (11.1.1 through 11.1.15)
NFPA 1006 11.2.1 through 11.2.4



Refer to copy of NFPA 1006 2008 edition in the Instructor Guide for questions specific to the chapters and sections.

Slide 9

NFPA 1006 Level II
14.2.1

- Demonstrate techniques for movement on ice, given an ice formation that is representative of the bodies of water/ice existing or anticipated within the geographic confines of the AHJ, ice rescue personal protective equipment, and swim aids as required, so that the specified objective is reached, all performance parameters are achieved, movement is controlled, hazards are continually assessed, distress signals are communicated, and rapid intervention for the rescuer has been staged for deployment.


Requisite Knowledge. Hydrology and specific hazards anticipated for representative ice rescue environments (shoreline, in-water, and climatic), selection criteria for ice rescue personal protective equipment and swim aids for anticipated water conditions and hazards, and swimming techniques for representative body of water.

Requisite Skills. The ability to swim and float in different water conditions with and without flotation aids or swim aids as required, apply water survival skills, don and doff personal protective equipment, select and use swim aids, utilize communications systems, use task-specific equipment, and evaluate water/ice conditions to identify entry points and hazards.

Slide 10

NFPA 1006 Level II
14.2.2

- Perform an entry rescue in the ice rescue environment, given an incident scenario, personal protective equipment, and ice rescue tool kit, so that independent positive buoyancy is established for the victim, rescue is accomplished, and adopted policies and safety procedures are followed.




Requisite Knowledge. Types and capabilities of personal protective equipment, effects of hydrodynamic forces on rescuers and victims, hydrology and characteristics of water, behaviors of victims, physiological effects of immersion and cold water near-drowning, water rescue rope-handling techniques, incident-specific hazard identification, criteria for selecting victim retrieval locations based on water environment and conditions, hazards and limitations of entry rescue, local policies/procedures for rescue team activation, and information on local water environments.

Requisite Skills. The ability to select personal protective equipment specific to the water/ice environment, don personal protective equipment, identify water/ice hazards (i.e., upstream or downstream, current or tides), identify hazards directly related to the specific rescue, and demonstrate appropriate victim removal techniques.

Slide 11

Hazards

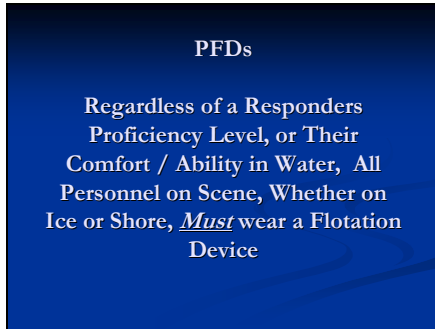
- Apply to Victim and Rescuer
 - Hypothermia
 - Trauma
 - Drowning
 - Near Drowning



Every year there are news accounts of rescuers, whether professional or bystanders, that became victims due to lack of training, experience, or equipment.

The hazards are there regardless of whether it is an actual incident or training.

Slide 12



Every department should have a policy regarding wearing of PFDs.

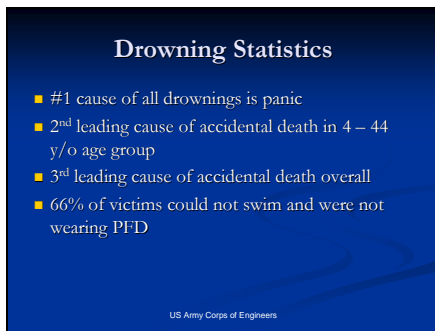
NHFST policy is that during training all students will wear a cold water rescue suit.

All Instructors will be wearing a USCG approved float coat.

A common sense approach to who on shore needs to be wearing a PFD can be related to rope rescue. Generally speaking, if you are less than your own height from the edge and trip you could go over so you need an edge protection line.

If you are on shore but close enough to the water's edge that if you were to slip, and fall in, you should be wearing a PFD!

Slide 13



Source of statistics is at bottom of slide. These vary slightly depending on what source used but are all basically the same.

Slide 14

More Stats

- Non swimmer will go under in 20 – 60 seconds
- 50% of victims are legally drunk
- 50% of victims incapacitated by cold water
- Any water less than 70 deg F is considered cold water

US Army Corps of Engineers

Stress that cold water, which is anything less than 70 degrees has a huge impact on victims ability to survive. Except for backyard swimming pools; not many bodies of water in New Hampshire get much above 70 degrees even in Summer.

Slide 15

Estimated Survival Times

■ Temp	Exhaustion	Incapacitation
■ 32	< 15M	30-45M
■ 40	15-30M	30-90M
■ 50	30-60M	1-3H
■ 60	1-2H	1-6H
■ 70	2-7H	2-40H
■ 80	Indefinite	

Ohio Department of Natural Resources

Source of statistics is at bottom of slide. These vary slightly depending on what source used but are all basically the same.

Slide 16

Cold Water

- Average adult male in 50F water for 50 minutes has 50% chance of survival
- Heat loss occurs 25% faster in water
- Core temp drops within 10 – 15 minutes
- Arms and legs become numb
- Leads to confusion, loss of consciousness, drowning

Minnesota Department of Natural Resources


Water basically acts as a huge heat sink and draws body heat out of you.

Source of statistics is at bottom of slide. These vary slightly depending on what source used but are all basically the same.

Slide 17

Hypothermia

- Body unable to maintain its core temperature
- Contributing factors include age, activity, general health, trauma, ETOH
- Had person been hypothermic prior to fall through ice?



Parks Canada

Stress that hypothermia does not require you be wet and/or immersed in water, though, it certainly has an effect.

Slide 18

Stages of Hypothermia

Core Temp	Symptoms
■ 99 – 96	Shivering
■ 95 – 91	Shivering, Dysphasia
■ 90 – 86	<LOC, <Shivering, Muscle contractions
■ 85 – 81	HR and RR slow
■ 80 – 78	Coma, Dysrhythmias, Reflexes cease

Brady - Essentials of Paramedic Care

Actual temperatures will require special thermometer.

Learn to recognize the signs and symptoms.

Protocols and Standard of Care will dictate treatment while enroute to medical facility.

Slide 19

Survival Factors

- Water Temperature
- Protective Clothing
- Body Size
- Body Fat Percentage
- Children Cool Faster Than Adults
- Water Movement Around Victim
- Victims Movement In Water

US Army Corps of Engineers

Go over treatment.
Ask Students for examples.
On the ice?
When do you start?
BLS vs. ALS?
During transport?

Slide 20

Drowning

- Laryngeal Spasm
- Wet Drowning
- Dry Drowning
- Freshwater vs. Saltwater Drowning
- Mammalian Diving Reflex
- Torso Reflex (aka Inhalation Reflex)

Brady - Essentials of Paramedic Care

Inform Students that NFPA standard specifies they understand pathophysiology of drowning. This does not mean they need to be a Paramedic or that treatment of wet drowning will be any different from dry drowning.

Can be compared to a room and contents fire, though we all must understand the difference, does it really matter to the nozzleman whether the fire spread due to conduction, or convection?

Slide 21

The Process

- Struggle > Panic
- Ingestion of water into Stomach
- Aspiration of Water into Airway
- Laryngospasm > Hypoxia
- Aspirate water into Lungs (wet drowning)
- Respiratory Arrest > Cardiac Arrest

Brady - Essentials of Paramedic Care

Cardiac Arrest treatment protocol is the same regardless of the type. Wet vs. dry, salt water vs. fresh.

Only differences to consider might be history:

Diabetic?

Drugs or alcohol?

Trauma?

Hypothermia Protocol?

Ask students to provide other concerns.

Slide 22

Laryngospasm

- Victim tries to cough up water which has entered the airway.
- Leads to involuntarily ingesting more water.
- Larynx and/or vocal cords constrict and seal trachea.
- 10-15% of victims maintain this until cardiac arrest.

Brady - Essentials of Paramedic Care

Slide 23

Wet Drowning

- Laryngospasm relaxes in most victims and water enters the lungs prior to death.
- Can be further broken down into freshwater or saltwater drowning.
- Treatment is the same.
- Similar to inhalation of toxic gases.

Brady - Essentials of Paramedic Care

Stress that wet or dry, fresh or salt water, our treatment will be the same.

Slide 24

Dry Drowning

- Affects Approximately 10% of Drowning and Near Drowning Victims
- *The Good News*
 - *Laryngospasm prevents water aspiration.*
- *The Bad News*
 - *You are still hypoxic!*
- Drowning and Near Drowning are primarily due to Hypoxia from Airway Obstruction, Secondary to Laryngospasm or Aspirated Water

Brady - Essentials of Paramedic Care

Stress that wet or dry, fresh or salt water, our treatment will be the same.

Slide 25

Freshwater Drowning

- Surface area of alveoli allow large amount of hypotonic solution to cross alveolar/capillary membrane.
- Results in hemodilution which leads to reduction in surfactant
- Loss of surfactant leads to atelectasis-alveolar collapse-which means blood is traveling through the lungs without being oxygenated
- Final result is death due to hypoxemia

Brady - Essentials of Paramedic Care

There is a difference between fresh and salt water.....but! Do not read too much into it.

We need to be able to tell the hospital because they will be getting blood gases and labs.

If patient survives it may make a difference in long term ICU treatment.

Our treatment in field will always be consistent with protocols and Standard of Care.

Have Students refer to handout

Slide 26

Saltwater Drowning

- Seawater is 3-4X more hypertonic than plasma
- Draws water from bloodstream into the alveoli
- Leads to profound pulmonary edema which results in hypoxemia
- Also, respiratory and metabolic acidosis develop due to retained CO₂

Brady - Essentials of Paramedic Care

There is a difference between fresh and salt water.....but! Do not read too much into it.

We need to be able to tell the hospital because they will be getting blood gases and labs.

If patient survives it may make a difference in long term ICU treatment.

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Have Students refer to handout

Slide 27

Mammalian Diving Reflex

- A reflex found in all mammals that puts the body into an oxygen saving mode when submerged in cold water.
- Conscious and unconscious people can survive longer without oxygen in water than on land.
- Children tend to survive longer than adults when deprived of oxygen when submerged

Brady - Essentials of Paramedic Care

This is why there have been reported cases of victims found alive, and have recovered with no deficits, even after up to one hour submerged.

Will almost certainly require following the hypothermia treatment protocol.

Slide 28

Principal Effects Mammalian Diving Reflex

- Bradycardia-reduction in heart rate up to 50% in humans.
- Peripheral Vasoconstriction-Decrease in blood flow to the extremities with increase in flow to brain and other vital organs.
- Blood Shift-Flow is shifted to the thoracic cavity between the diaphragm and neck. Helps prevent collapse of lungs under pressure from deep water.

Brady - Essentials of Paramedic Care

This is why there have been reported cases of victims found alive, and have recovered with no deficits, even after up to one hour submerged.

Slide 29

Cold Water Drowning

- Submersion in cold water slows metabolism dramatically!
- Rare but documented cases of survival of submerged patient after up to one hour!
- Never consider a patient dead until they have been re-warmed in hospital and all appropriate lifesaving measure have been taken.
- < than 70 deg. is considered cold water!

Brady - Essentials of Paramedic Care

Slide 30

Torso Reflex

- An automatic response to sudden submersion in cold water.
- Involuntary gasp of air may lead to a person who is submerged inhaling water.
- Should always attempt to:
 - Enter water slowly
 - Cover mouth and nose with hands
 - Try to land in supine position

Brady - Essentials of Paramedic Care

Ask Students if anyone has ever stepped into a shower expecting hot water and it was cold. Same thing happens.

We will stress throughout the practical sessions the importance of entering the water slowly and bleeding the suit of trapped air. Explained more further on in the program.

Slide 31

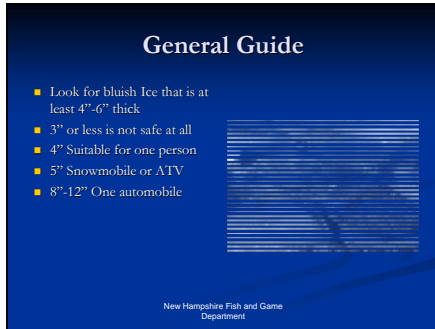
Ice

- No Ice can be considered 100% safe
- Cloudy Ice = Air bubbles or pockets
- Partially submerged objects
- Moving water, Channels
- Schools of fish
- Previously thawed
- Bridge abutments, piers, etc

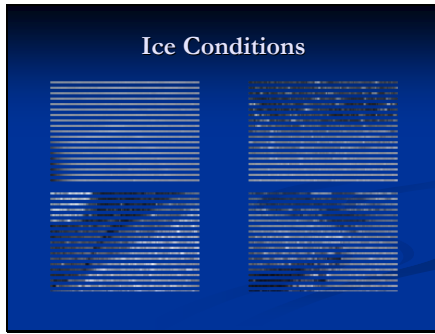
Ohio State University

Make sure to point these things out when actually on the ice.

Slide 32



Slide 33



Explain to students that once out on the ice we will show differences, if available.

Top left is Milk Ice. Be suspect of it. Not considered well frozen and hard, contains air and snow. Sometimes aka snow ice.

Top Right is Clear or Hard Ice. Generally considered the strongest. Appears that you can look down through it and estimate its depth. Can appear bluish black.

Bottom Left is Layer Ice. Formed at more than one time, thickness varies. One spot can be thicker than another spot right next to it.

Bottom Right is Old / Previously Frozen / Refrozen Ice. Similar to Layered ice. Should not be trusted. In this example the clear or black ice may be quite thin as just having refroze overnight and the milk ice actually thicker though not as solid.


We do not have pictures but NFPA term for new ice is Frazil Ice

Important to stress to the students that regardless of the type of ice, how thick it is, how many people and vehicles are on it, etc no ice can be considered safe to be on. There are simply too many variables

Slide 34

Common Sense

- The fact that there is a victim in the water is proof that the ice is not safe regardless of how thick it is!



Talk to students realistically about expectations for both days.


Students should be aware that they will be in deep water both days. While a little concern is okay, students must be realistic and acknowledge whether they can be comfortable in the scenarios.

Similar to claustrophobia found in SCBA class we have found students here very afraid of water. While we can do our best to help them work through their fears we cannot cure them or allow them to endanger themselves or others if they panic.

Slide 35

Practical Evolutions

- Operations Level
 - Throw Bag
 - Pike Pole
 - Dog Tool
 - Roof Ladder



All these are done on afternoon of day 1 with exception of roof ladder. This is discussed, not actually performed.

All students will don suits in classroom prior to travelling to site. Go over how to don suit, enter water, protect airway. Practice skills in firehouse prior to being on ice. Try to determine if any seriously hydrophobic students in class.

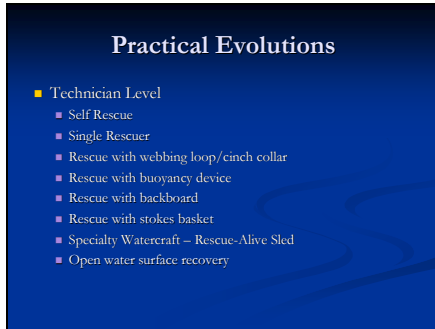
Break class into 4 groups of six students, one Instructor per group.

Goal is to give each Student at least two attempts at each evolution.

Have Students try throw bag with rope bagged, then on second attempt just haul rope in and throw again. Simulates a miss, and no time to rebag the rope.

If possible and practical site allows, have students throw ropes and attempt pole grab from ice or shore where they are level with victim, and from an elevation such as bridge where they are above victim. Throw bag especially can require different technique.

Slide 36

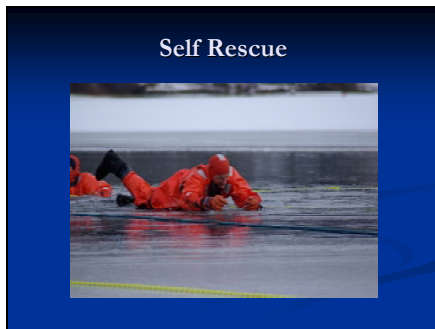


All these are done on day 2. Usually meet at the practical location, no need to meet back in classroom in morning.

Break class into 4 groups of six students, one Instructor per group.

Goal is to give each student at least two attempts at each evolution.

Slide 37



Each student will practice entering water correctly- Stress that this should be done slowly.

Each student has a safety line attached.

To enter the water, the student will:

Approach on chest with weight distributed.

Rotate and lower legs into water.

Hold neck of suit away while protecting airway, and allow air to bleed out of suit.

Assume buoyant position with body oriented straight up and down.

To get onto the ice shelf, the student will:

Reach as far forward as possible, with picks, and jam them into ice.

Kick with feet, while pulling themselves up onto ice shelf.

Once onto solid ice roll away from edge being careful to keep weight spread out.

Rotate through **Tender** and **Safety** positions, repeat at least once.



Assignments:

IC

Rescuer

Victim

Tender(s)

Victim enters water just as they were shown when performing Self – Rescue, then positions themselves at edge of ice.

Rescuer advances towards victim face first, crawling on chest, off to one side. Do not approach victim straight on. Approaching from victim's left seems to work best for right handed Rescuer.

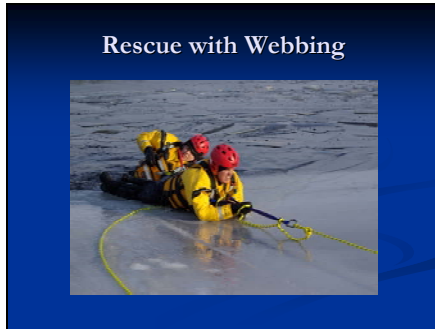
Enter water and assume neutral buoyancy as shown during Self – Rescue evolution, control Victim by using left hand to control their hands and place right arm over their back.

In one smooth motion pull Victim onto their side/back, making sure their shoulder does not get caught below ice edge, while at same time rolling onto your left side so that your left shoulder is up on edge of ice and your weight is on that shoulder.

Quickly signal for pull on your tender line and hold firmly onto victim.

As you are pulled onto ice the victim will come along also.

Have students rotate through all positions so that each has at least two opportunities to do each role.



Assignments:

IC

Rescuer

Victim

Tender(s)

Rope configuration:

Attach yourself to **end** of tender line with figure 8 loop connected to carabiner on front of your harness.

Tie an alpine butterfly approx 5-6 feet up the line.

This connection will have the webbing loop for the victim attached to it. The reason it is done this way is so that when the line is hauled in the rescuer does not have to maintain a hold on the victim.

The victim is hauled out first and rescuer follows.

Also, having the 6' length between rescuer and victim allows rescuer to keep at least arms length away from a panicky victim or the ability to disconnect themselves if need be.

Victim enters water just as they were shown when performing Self – Rescue, then positions themselves at edge of ice.

Rescuer advances towards victim face first, crawling on chest, off to one side. Do not approach victim straight on. Approaching from victims left seems to work best for right handed Rescuer.

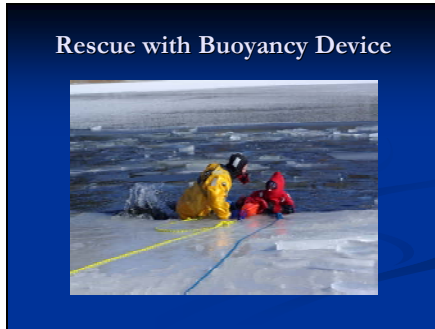
Enter water and assume neutral buoyancy as shown during Self – Rescue evolution, control Victim by using left hand to control their hands.

Using right arm place loop of webbing over victims head and arms.

Quickly call for pull on your tender line and hold firmly onto line and victim.

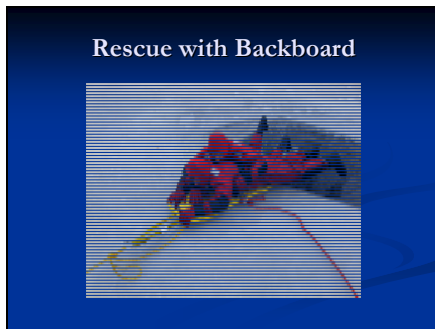
As victim is pulled up onto ice and line becomes taught you will also be pulled out of water and up onto ice.

Slide 40



Essentially the same as the webbing loop just instead of trying to get a loop of webbing around the victim you are just handing them a buoyancy device. Knots are tied same places for same reasons.

Slide 41



Again, essentially the same as the webbing loop and buoyancy device just instead of trying to get a loop of webbing around the victim you are just handing them a floating backboard. Knots are tied same places for same reasons.

This, along with USCG approved buoyancy device and stokes litter equipped with flotation aids meet NFPA requirement **“so that independent positive buoyancy is established for the victim”** Level II 14.2.2 (Slide 10).

Have victim enter water same as on other evolutions.

Rescuer enters water same also.

Continually stress that rescuer approaches victim face first, on chest, weight distributed.

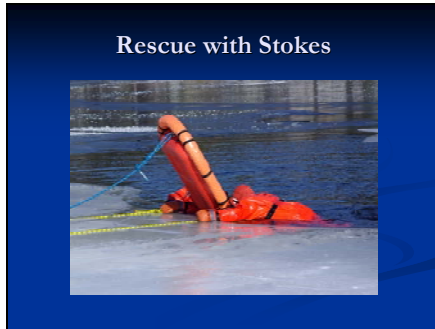
Make eye contact with victim.

Swing out to side so as to avoid breaking ice in front of victim, rotate and enter water, bleed suit, and obtain neutral buoyancy, all while keeping 6-8' away from victim.

Slide board towards victim while at same time submerging foot end of board.

As soon as victim is able to help themselves onto board, assist them in doing so while at same time straddling victim and board.

Call for pull on tender line and hold onto board and victim while being pulled onto ice.



Again, essentially the same as the floating backboard evolution, but in this case they can be rolled into the basket and not just be on top of it. Even with full size adult without a flotation device this device is supposed to maintain buoyancy. (For this class; victims will always have cold water survival suit on). Knots are tied same places for same reasons.

This, along with USCG approved buoyancy devices and tools such as floating backboard meet NFPA requirement **“so that independent positive buoyancy is established for the victim”** Level II 14.2.2 (Slide 10).

Have victim enter water same as on other evolutions. Rescuer enters water in the same manner.

Continually stress that rescuer approaches victim face first, on chest, weight distributed.

Make eye contact with victim.

Swing out to side so as to avoid breaking ice in front of victim, rotate and enter water, bleed suit, and obtain neutral buoyancy; while keeping 6-8' away from victim.

Slide litter towards victim while at same time submerging foot end of basket. Have victim simulate unconscious or hypothermic patient who is unable to assist themselves.

While keeping the foot end of basket submerged and head end above edge of ice, maneuver basket next to victim.

Grab victim by right shoulder and roll them into basket.

Rescuer then straddles basket and victim and calls for pull on line attached to basket. Hold onto basket and victim while being pulled onto ice.

Slide 43



There are several different types of craft designed for water and ice rescue. This is not an endorsement of any particular product.

We chose the Rescue-Alive sled and find it works well. Not perfect, and has limitations, but due to length of program and costs, simply cannot buy and use each product on the market.

Demo in fire station prior to going out on ice.

View video(s) either now or and end of PowerPoint.

Slide 44



Points to discuss and reinforce:

Be proficient with whatever you have in your department.

Rescuer must stay back to insure pontoons do not submerge and go under the ice edge.

Sled is very susceptible to moving water. Can and will capsize if one end is on ice and other end is pushed along by current.

Sled is very stable but can be flipped. In the event it does remember that your victim is strapped to the sled and now underwater, and the handles prevent it from being pulled up onto the ice when upside down.

Does a good job in both open water and on solid ice.


However, trying to move sled through open water that has large chunks of floating ice, is very difficult.

Haul team will pull on rope attached to sled, however, both rescuer and victim must have safety lines on them.

Slide 45

Open Water Surface Recovery

- Tender line attached to chest and back
- Direction provided by shore personnel
- Mental/physical status of victim

A photograph showing a person in the water being pulled by a rope. The person is lying on their back, and the rope is attached to their chest and back. The water is dark, and the background is a light blue sky.

Not all victims will be conveniently hanging onto the ice shelf.

Having line attached to chest allows rescuer to backstroke toward victim without tension on back connection.

Once at victim, rescuer unhooks his chest connection, turns to face victim, and spins them around so that rescuer is behind victim with arms around them and underneath victims. This supports victim and keeps head above water.

Rescuer signals for pull from haul team and he is


slowly brought back to shore or edge of ice.
Hauling slowly from rear with rescuer floating on their back helps to keep heads of both rescuer and victim above water.

Note: Stress that this is not an approved lifeguard course! Dealing with a panicked swimmer is very dangerous and challenging and encourage students to get further training in those skills.

Slide 46

Anchoring the Tender Line

- Ice screws used when victim is further from shore than longest rope
- Can place change of direction pulley if needed

A photograph showing a person using an ice screw to anchor a rope. The person is standing on ice, and the rope is attached to the ice screw. The background is a light blue sky.

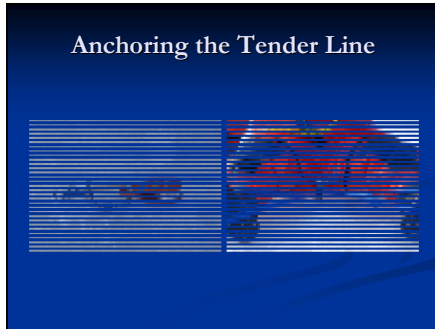
Each group of Students gets an ice screw and length of webbing. Allows for secure footing for members hauling on tender lines when victim is farther from shore than longest ropes.

Place ice screw so that 2-3" remains showing. Wrap pre-tied loop of webbing around screw with either simple wrap or a clove hitch then have tender sit in front of screw and place feet into ends.

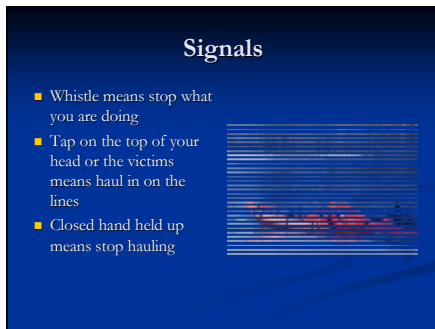
Can use pulley for change of direction but unless for some reason ice / water conditions dictate it has no real practical value.

Reminder: Make certain to always keep webbing, carabiners, pulleys, screws etc in the tote box when not being used. They tend to disappear into the slush and little piles of snow that get built up from everyone working in the area.

Slide 47



Slide 48



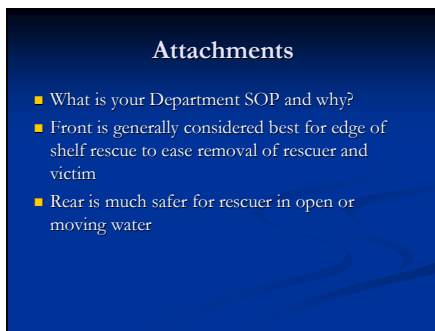
Each Instructor has a whistle. In the event a whistle is heard EVERYONE is to stop what they are doing and turn their attention to who blew the whistle. This is an indication of an impending or currently happening safety issue.

Students need to know two basic signals:

Rescuer tapping either the victims or their own head with an open hand means for the tenders to pull on the lines.

Rescuer holding up a closed fist is the signal for the tenders to stop hauling.

Slide 49



Discuss this with the class.

This is not a moving water class, never mind swift water.

Slide 50

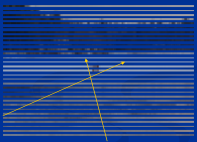
Attachments

- Consider end line knot to back and second attachment 3-4 feet up on line to chest.
- Allows rescuer to disconnect chest in event of needing to cross open water.
- Line on rear now allows rescuer to float on back while holding victim and be hauled in without being pulled under.

Slide 51

Locating Victim

- Verbal and visual contact
- Try to mark location by lining up victim with an object in the background
- Have rescuer not entering water "lock on" to last location in case victim submerges



Slide 52

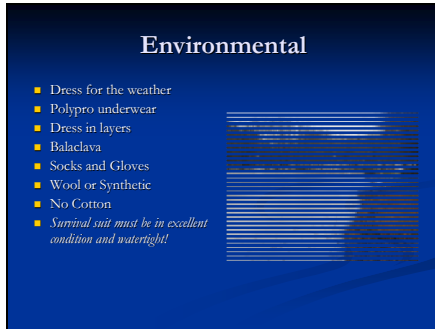
Safety

- Situational Awareness
- Hypothermia
- Frostbite
- Slips and Falls
 - *This is not a half hour in and out rescue!*
 - *We will be on the ice and in the water all day!*

Cannot stress enough to keep track of your Students! Accountability!

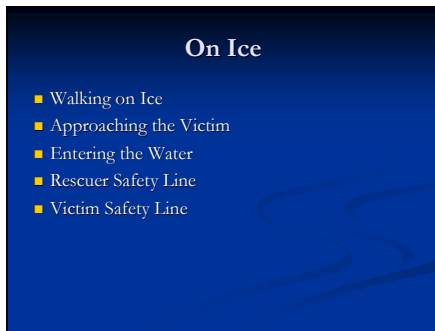
While an actual rescue may very well be accomplished quickly this class is all day long. Pay attention for signs of hypothermia in the students, and fellow Instructors.

Slide 53



This goes out with the acceptance letter.

Slide 54



Stress to be very careful walking on ice

When approaching victim stress to:

Face first, make eye and voice contact.

Face down on ice, body weight distributed as much as possible. Never approach standing up

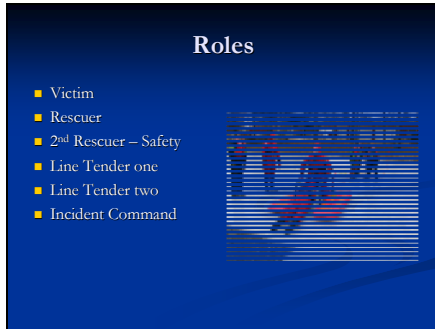
When entering the water:

Move to one side when entering water and keep 6-8' away from victim. This allows rescuer to purge suit and obtain neutral buoyancy, while keeping away from victim. Also helps prevent breaking away the shelf that victim was clinging to.

One tender is always monitoring rescuer tender line and / or equipment haul line.

If personnel allow, have one student tend victims safety line. Regardless whether it is tended or not, **all** victims and rescuers in the water **will** have an attached safety line in place that can be used to secure or retrieve them in event of an emergency.

Slide 55

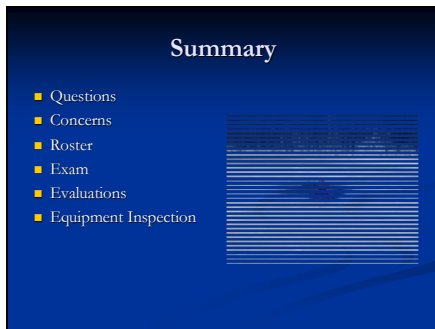


Goal is to have all students in each role at least twice.

Everyone will have different comfort levels, but, all must participate in all roles.

This class does not differentiate between Level I and Level II. There is no role where students do not enter water.

Slide 56



Answer any questions students may have.

Concerns? Injuries?

Again verify roster was complete and turned in.

Have all students eligible complete the exam. A student that did not complete practical skills cannot take written exam.

Have each student complete an evaluation.

Inspect and inventory all equipment. Double check students suits for loose equipment, carabiners, etc. Bring all equipment back to NHFA and hang all wet equipment in hose tower.

Rope logs not required.

Candidate: _____

Date: _____

Skill Drill 11.2.2
Fire Fighter III – Ice Rescue

Perform a Swimming Surface Water Rescue

Evaluator Instructions: The candidate shall be provided with a cold water survival suit, ice picks, tender line and carabiners, webbing loop

Task: Perform a swimming surface water rescue of a simulated drowning victim.

Performance Outcome: The candidate shall be able to maintain buoyancy in open water, swim to victim, secure and maintain control of victim while tender line is utilized to retrieve rescuer and victim.

Candidate Directive: Connect the tender line to himself, enter water so buoyancy is maintained, perform backstroke to travel to victim (approx 25') release front suit connection, gain control of victim by wrapping arms around chest and support victim on their back keeping head above water, call for tender line to retrieve rescuer and victim by rear suit connection.

No.	Task Steps	1st Test		Retest	
		P	F	P	F
1	Assemble necessary equipment and connects tender line correctly				
2	Enter water by correct method allowing suit to purge air				
3	Maintains voice and visual contact with shore to follow directions to victim				
4	Performs backstroke until within 6' – 10' of victim				
5	Disconnects tether line chest connection (now connected only by back connection)				
6	Makes voice contact with victim and maneuvers victim in water so victim is facing away				
7	Holds victim under arms so that buoyancy is maintained and both rescuer and victims faces remain above water				
8	Calls for retrieval and maintains control of victim while tender line is utilized to retrieve both rescuer and victim to shore				

Evaluator Comments: _____ Candidate Comments: _____

Evaluator

Date

Candidate

Date

Retest Evaluator

Date

Retest Candidate

Date

Candidate: _____

Date: _____

Skill Drill 11.2.3
Fire Fighter III – Ice Rescue

Demonstrate Combative Victim Control Tactics

Evaluator Instructions: The candidate shall be provided with a cold water survival suit, ice picks, tender line and carabiners, webbing loop

Task: Demonstrate techniques utilized to control a combative drowning victim

Performance Outcome: The candidate shall be able to maintain buoyancy in open water, maintain separation in event victim is combative / panicked so that personal safety is maintained and rescuer submersion is prevented.

Candidate Directive: Connect the tender line to himself, enter water so buoyancy is maintained, perform backstroke to travel to victim (approx 25') release front suit connection, gain control of victim by wrapping arms around chest and support victim on their back keeping head above water, and in event of panicked victim release victim and push away so that contact is separated.

No.	Task Steps	1st Test		Retest	
		P	F	P	F
1	Assemble necessary equipment and connects tender line correctly				
2	Enter water by correct method allowing suit to purge air				
3	Maintains voice and visual contact with shore to follow directions to victim				
4	Performs backstroke until within 6' – 10' of victim				
5	Disconnects tether line chest connection (now connected only by back connection)				
6	Makes voice contact with victim and maneuvers victim in water so victim is facing away				
7	Holds victim under arms so that buoyancy is maintained and both rescuer and victims faces remain above water				
8	Releases simulated combative drowning victim and pushes victim away while continuing to be retrieved by tender line thus preventing victim from maintaining contact and submerging rescuer				

Evaluator Comments: _____ Candidate Comments: _____

Evaluator

Date

Candidate

Date

Retest Evaluator

Date

Retest Candidate

Date

Candidate: _____

Date: _____

Skill Drill 11.2.4
Fire Fighter III – Ice Rescue

Supervise a Rescue Team

Evaluator Instructions: The candidate shall be provided with a cold water survival suit, ice picks, tender line and carabiners, webbing loop

Task: Supervise, coordinate, and lead an ice rescue team during an operation

Performance Outcome: The candidate shall be able to safely and efficiently supervise a simulated ice or open water rescue so that accountability is maintained and positive outcome is achieved

Candidate Directive: Given a simulated ice or cold water rescue the student will coordinate all operations and tasks, ensure that health and safety of the team is maintained, assign roles and responsibilities based on qualifications and needs, provide a pre-entry briefing as well as a debriefing.

No.	Task Steps	1st Test		Retest	
		P	F	P	F
1	Ensures all necessary equipment assembled and connected correctly				
2	Demonstrates ability to safely and efficiently move on ice surface				
3	Verbalizes ice conditions and estimated ability to support weight				
4	Assess all hazards both actual and anticipated				
5	Assigns roles and tasks, assumes responsibility for roles not assigned				
6	Maintains voice and visual contact with safety if assigned				
7	Ensures accountability before, during, and after scenario				
8	Provides pre-entry briefing and post entry debriefing				

Evaluator Comments: _____ Candidate Comments: _____

_____	_____
_____	_____
_____	_____

_____	_____	_____	_____
Evaluator	Date	Candidate	Date

_____	_____	_____	_____
Retest Evaluator	Date	Retest Candidate	Date

Candidate: _____

Date: _____

Skill Drill 14.1.3
Fire Fighter III – Ice Rescue

Non-Entry Rescue – Reach Pole

Evaluator Instructions: The candidate shall be provided with a cold water survival suit, ice picks, tender line and carabiners, and PVC pipe reach pole

Task: Demonstrate techniques utilized to efficiently and safely assist a victim using a reach pole

Performance Outcome: The candidate shall be able to safely and efficiently move to within, but not closer than, 6' and pass a reach pole to them which they can grab

Candidate Directive: Given the proper PPE the rescuer will travel across ice on foot and once approaching the victim make voice and visual contact with them. Student will then push a PVC pipe reach pole to the victim, instruct victim to place their arm through the rope loop, twist pole until victim is secured, assist victim with self rescue by gently pulling as they attempt to get out of water and onto ice shelf

No.	Task Steps	1st Test		Retest	
		P	F	P	F
1	Ensures all necessary equipment assembled and connected correctly				
2	Demonstrates ability to safely and efficiently move on ice surface				
3	Verbalizes ice conditions and estimated ability to support weight				
4	Initiates voice and visual contact with victim				
5	Pushes PVC pipe reach pole toward victim and assists with maneuvering victims arm through rope loop				
6	Twists pole as needed to secure victim				
7	Assists victim with recovery by holding pole tightly and supplying gentle traction or pulling as needed				
8					

Evaluator Comments: _____ Candidate Comments: _____

Evaluator

Date

Candidate

Date

Retest Evaluator

Date

Retest Candidate

Date

Date: _____

Non-Entry Rescue – Throw Rope

Candidate Directive: Given the proper PPE the rescuer will travel across ice on foot and once approaching the victim make voice and visual contact with them. Student will then toss a bagged rescue rope close enough to the victim that it can be grabbed without them letting go of ice shelf or needing to traverse open water. Rescuer will then haul on rope to assist victim with moving up onto ice shelf

No.	Task Steps	1st Test		Retest	
		P	F	P	F
1	Ensures all necessary equipment assembled and connected correctly				
2	Demonstrates ability to safely and efficiently move on ice surface				
3	Verbalizes ice conditions and estimated ability to support weight				
4	Initiates voice and visual contact with victim				
5	Throws rope to victim as indicated above while maintaining control of haul end				
6	Directs victim in technique to grab rope and to assist with water to ice transition				
7	Assists victim with recovery by holding rope tight or pulling as needed				
8					

Date

Date _____

Candidate: _____

Date: _____

Skill Drill 14.2.1
Fire Fighter III – Ice Rescue

Movement on Ice and in Water

Evaluator Instructions: The candidate shall be provided with a cold water survival suit, ice picks, tender line and carabiners, webbing loop

Task: Demonstrate techniques utilized to efficiently and safely move on ice and in water

Performance Outcome: The candidate shall be able to safely and efficiently travel on ice to area of open water then enter water so that buoyancy is maintained and rescuer is able to move at will in water

Candidate Directive: Given the proper PPE the rescuer will travel across ice on foot and once approaching open water lie prone and move off to side of area where simulated victim is located. Rescuer enters water correctly, bleeding suit of entrapped air and maintaining buoyancy. Navigates in water to a level sufficient to demonstrate competency in being able to move in the direction they need to when they need to. Removes themselves from water utilizing ice picks and proper kick and roll technique.

No.	Task Steps	1st Test		Retest	
		P	F	P	F
1	Ensures all necessary equipment assembled and connected correctly				
2	Demonstrates ability to safely and efficiently move on ice surface				
3	Verbalizes ice conditions and estimated ability to support weight				
4	Selects entry point that minimizes potential impact on victim by not disturbing ice shelf				
5	Enters water by correct method allowing suit to purge air				
6	Maintains voice and visual contact with IC and/or safety				
7	Demonstrates ability to move where directed in an efficient and safe manner				
8	Demonstrate ability to remove themselves from water utilizing proper equipment and technique and without assistance from tender line				

Evaluator Comments: _____ Candidate Comments: _____

Evaluator

Date

Candidate

Date

Retest Evaluator

Date

Retest Candidate

Date

Candidate: _____

Date: _____

Skill Drill 14.2.2
Fire Fighter III – Ice Rescue

Perform an Entry Ice Rescue – Unassisted

Evaluator Instructions: The candidate shall be provided with a cold water survival suit, ice picks, tender line and carabiners

Task: Demonstrate techniques utilized to efficiently and safely remove a victim from water

Performance Outcome: The candidate shall be able to safely and efficiently move to the victim, select area to enter, enter water correctly, and maintain control of victim while with assistance from shore tenders remove the victim and themselves from the water

Candidate Directive: Given the proper PPE the rescuer will travel across ice on foot and once approaching open water lie prone and move off to side of area where victim is located. Rescuer enters water correctly, bleeding suit of entrapped air and maintaining buoyancy, indicates to shore tenders that retrieval is now needed, and assists with moving themselves and victim up onto ice shelf while at same time maintaining control of victim

No.	Task Steps	1st Test		Retest	
		P	F	P	F
1	Ensures all necessary equipment assembled and connected correctly				
2	Enters water by correct method allowing suit to purge air				
3	Initiates contact with victim and maintains throughout rescue				
4	Maneuver so that dominant arm is able to assist with rescue and non dominant shoulder is up on top of ice shelf				
5	Calls for shore tender line to haul both rescuer and victim onto ice while maintaining control of victim at all times				
6					
7					
8					

Evaluator Comments: _____ Candidate Comments: _____

Evaluator

Date

Candidate

Date

Retest Evaluator

Date

Retest Candidate

Date

Candidate: _____

Date: _____

Skill Drill 14.2.2

Fire Fighter III – Ice Rescue

Perform an Entry Ice Rescue – Webbing Loop

Evaluator Instructions: The candidate shall be provided with a cold water survival suit, ice picks, tender line and carabiners, webbing loop

Task: Demonstrate techniques utilized to efficiently and safely remove a victim from water

Performance Outcome: The candidate shall be able to safely and efficiently move to the victim, select area to enter, enter water correctly, and maintain control of victim while with assistance from shore tenders remove the victim and themselves from the water

Candidate Directive: Given the proper PPE the rescuer will travel across ice on foot and once approaching open water lie prone and move off to side of area where victim is located. Rescuer enters water correctly, bleeding suit of entrapped air and maintaining buoyancy, assists with maneuvering victim onto ice shelf, indicates to shore tenders that retrieval is now needed, and positions themselves up onto ice shelf while at same time maintaining control of victim

No.	Task Steps	1st Test		Retest	
		P	F	P	F
1	Ensures all necessary equipment assembled and connected correctly				
2	Enters water by correct method allowing suit to purge air				
3	Initiates contact with victim and maintains throughout rescue				
4	Passes webbing loop to victim and assists victim with placing loop over head and both arms.				
5	Maneuver so that dominant arm is able to assist with rescue and non dominant shoulder is up on top of ice shelf				
6	Calls for shore tender line to haul both rescuer and victim onto ice while maintaining control of victim at all times				
7					
8					

Evaluator Comments: _____ Candidate Comments: _____

Evaluator

Date

Candidate

Date

Retest Evaluator	Date	Retest Candidate	Date
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Candidate: _____

Date: _____

Skill Drill 14.2.2
Fire Fighter III – Ice Rescue

Perform an Entry Ice Rescue – LSP Cinch Collar

Evaluator Instructions: The candidate shall be provided with a cold water survival suit, ice picks, tender line and carabiners, webbing loop and /or a device capable of providing independent buoyancy

Task: Demonstrate techniques utilized to efficiently and safely remove a victim from water

Performance Outcome: The candidate shall be able to safely and efficiently move to the victim, select area to enter, enter water correctly, and maintain control of victim while with assistance from shore tenders remove the victim and themselves from the water

Candidate Directive: Given the proper PPE the rescuer will travel across ice on foot and once approaching open water lie prone and move off to side of area where victim is located. Rescuer enters water correctly, bleeding suit of entrapped air and maintaining buoyancy, assists with maneuvering victim onto or into independent buoyant device, indicates to shore tenders that retrieval is now needed, and assists with moving themselves up onto ice shelf while at same time maintaining control of victim

No.	Task Steps	1st Test		Retest	
		P	F	P	F
1	Ensures all necessary equipment assembled and connected correctly				
2	Enters water by correct method allowing suit to purge air				
3	Initiates contact with victim and maintains throughout rescue				
4	Passes collar to victim and assists victim with placing collar over head and both arms				
5	Maneuver so that dominant arm is able to assist with rescue and non dominant shoulder is up on top of ice shelf				
6	Calls for shore tender line to haul both rescuer and victim onto ice while maintaining control of victim at all times				
7					
8					

Evaluator Comments: _____ Candidate Comments: _____

_____	_____
_____	_____
_____	_____

Evaluator

Date

Candidate

Date

Retest Evaluator

Date

Retest Candidate

Date

Candidate:

Date:

Skill Drill 14.2.2

Fire Fighter III – Ice Rescue

Perform an Entry Ice Rescue – Longboard

Evaluator Instructions: The candidate shall be provided with a cold water survival suit, ice picks, tender line and carabiners, webbing loop and /or a device capable of providing independent buoyancy

Task: Demonstrate techniques utilized to efficiently and safely remove a victim from water

Performance Outcome: The candidate shall be able to safely and efficiently move to the victim, select area to enter, enter water correctly, and maintain control of victim while with assistance from shore tenders remove the victim and themselves from the water

Candidate Directive: Given the proper PPE the rescuer will travel across ice on foot and once approaching open water lie prone and move off to side of area where victim is located. Rescuer enters water correctly, bleeding suit of entrapped air and maintaining buoyancy, assists with maneuvering victim onto or into independent buoyant device, indicates to shore tenders that retrieval is now needed, and assists with moving themselves up onto ice shelf while at same time maintaining control of victim

No.	Task Steps	1st Test		Retest	
		P	F	P	F
1	Ensures all necessary equipment assembled and connected correctly				
2	Enters water by correct method allowing suit to purge air				
3	Initiates contact with victim and maintains throughout rescue				
4	Submerges foot end of longboard so that approx ½ of board length remains above water and cantilevered on ice shelf (shelf will act as fulcrum)				
5	Maneuver so that dominant arm is able to assist with rolling victim onto board and non dominant shoulder is up on top of ice shelf				
6	Calls for shore tender line to haul both rescuer and victim onto ice while maintaining control of victim at all times				
7					
8					

Evaluator Comments: _____ Candidate Comments: _____

Evaluator

Date

Candidate

Date

Retest Evaluator	Date	Retest Candidate	Date
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Candidate: _____

Date: _____

Skill Drill 14.2.2
Fire Fighter III – Ice Rescue

Perform an Entry Ice Rescue – Stokes Litter

Evaluator Instructions: The candidate shall be provided with a cold water survival suit, ice picks, tender line and carabiners, webbing loop and /or a device capable of providing independent buoyancy

Task: Demonstrate techniques utilized to efficiently and safely remove a victim from water

Performance Outcome: The candidate shall be able to safely and efficiently move to the victim, select area to enter, enter water correctly, and maintain control of victim while with assistance from shore tenders remove the victim and themselves from the water

Candidate Directive: Given the proper PPE the rescuer will travel across ice on foot and once approaching open water lie prone and move off to side of area where victim is located. Rescuer enters water correctly, bleeding suit of entrapped air and maintaining buoyancy, assists with maneuvering victim onto or into independent buoyant device, indicates to shore tenders that retrieval is now needed, and assists with moving themselves up onto ice shelf while at same time maintaining control of victim

No.	Task Steps	1st Test		Retest	
		P	F	P	F
1	Ensures all necessary equipment assembled and connected correctly				
2	Enters water by correct method allowing suit to purge air				
3	Initiates contact with victim and maintains throughout rescue				
4	Submerges foot end of stokes litter so that approx ½ of litter length remains above water and cantilevered on ice shelf (shelf will act as fulcrum)				
5	Maneuver so that dominant arm is able to assist with rolling victim into litter while utilizing foot to hold litter down in water				
6	Roll themselves up on top of victim in litter				
7	Calls for shore tender line to haul litter containing both rescuer and victim onto ice while maintaining control of victim at all times				
8					

Evaluator Comments: _____ Candidate Comments: _____

Evaluator

Date

Candidate

Date

Retest Evaluator

Date

Retest Candidate

Date

Candidate: _____

Date: _____

Skill Drill 14.2.2
Fire Fighter III – Ice Rescue

Perform an Entry Ice Rescue – Rescue-Alive Sled

Evaluator Instructions: The candidate shall be provided with a cold water survival suit, ice picks, tender line and carabiners, webbing loop and /or a device capable of providing independent buoyancy

Task: Demonstrate techniques utilized to efficiently and safely remove a victim from water

Performance Outcome: The candidate shall be able to safely and efficiently move to the victim, select area to enter, enter water correctly, and maintain control of victim while with assistance from shore tenders remove the victim and themselves from the water

Candidate Directive: Given the proper PPE the rescuer will propel the Rescue-Alive sled across solid ice and once approaching open water transition to standing on pontoons and paddling as needed. Student will then make contact with victim, maneuver victim onto lift strap, utilize lift strap to lift victim up and out of water, transition to rear of sled and call for sled to be hauled in by shore tenders. All while maintaining control of sled and victim.

No.	Task Steps	1st Test		Retest	
		P	F	P	F
1	Ensures all necessary equipment assembled and connected correctly				
2	Maneuvers sled across ice, maintaining position inside pontoons				
3	Approaches victim directly and initiates voice contact				
4	Transitions from ice to open water and back as needed and maneuvers so that any obstacles encountered, i.e. open water, ice floes, etc, are overcome and contact made with victim				
5	Positions victim onto lift strap while maintaining position inside pontoons				
6	Lifts victim clear of water using lift strap while maintaining position inside pontoons				
7	Transitions to end of sled and assists with sled maintaining a “nose up” orientation to permit transition from water onto ice shelf				
8	Calls for shore tender line to haul sled containing both rescuer and victim onto ice and back to shore while maintaining control of victim and sled at all times				

Evaluator Comments: _____ Candidate Comments: _____

Evaluator

Date

Candidate

Date

Retest Evaluator

Date

Retest Candidate

Date