

**ST. CROIX EMS & RESCUE
STANDARD OPERATING PROCEDURES**

Subject: Dive Team Standard Operating Procedures for Training and Rescue/Recovery Operations	Created: 2000, Revised 2004, 2006
	Date: January 2007

PURPOSE STATEMENT

The purpose is to ensure that all diving under the auspices of St. Croix EMS & Rescue Dive Team are conducted in a manner that maximizes protection of Divers from accidental injury and/or illness. This document set's forth-minimal procedures for the establishment of diving programs within St. Croix EMS & Rescue. In addition these procedures establish the basic regulations and procedures for safety in diving operations, and enable the department to comply with NFPA 1670

POLICY

- No person shall engage in diving operations unless they currently are certified by St. Croix EMS & Rescue as a Public Safety Diver as outlined in this policy.
- No personnel are permitted to operate at a level of certification above which they have been certified by the department at any incident or training exercise.
- Divers must be annually tested to department standards to maintain department certification to act in the capacity of a Diver.
- Diving for St. Croix EMS & Rescue is to be considered a privilege and can be revoked at anytime by the Dive Team Coordinator.

SPECIAL DEFINITIONS

ALTERNATE AIR SYSTEM	A secondary air supply system that involves an alternate second-stage regulator provided by either a separate dedicated second-stage or a multi-purpose second stage regulator coupled with a buoyancy compensator inflator valve.
COMPETENT PERSON	One who is capable of identifying existing and predictable conditions in the surroundings or in the working area that are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate such conditions.
DIVE	An exposure to increased pressure whether underwater or in a hyperbaric chamber.
DIVE OPERATION	A situation requiring divers to complete an assigned task.
DIVE TEAM	Personnel trained and certified in dive operations.
PUBLIC SAFETY DIVER	An individual using breathing apparatus that supplies compressed breathing air at ambient pressure and is conducting dives outside the parameters of recreational diving.
PUBLIC SAFETY DIVING	Underwater diving, related to team operations and training, performed by a member, group or agency of a community or government-recognized public safety diving or water rescue team.

**ST. CROIX EMS & RESCUE
STANDARD OPERATING PROCEDURES**

Subject: Dive Team Standard Operating Procedures for Training and Rescue/Recovery Operations	Created: 2000, Revised 2004, 2006
	Date: January 2007

SPECIAL DEFINITIONS (CONT.)

“REACH, THROW, ROW, GO” The four sequential steps in water rescue with progressively more risk to the Rescuer. Specifically, a “go” rescue involves physically entering the medium (e.g., in the water or on the ice).

REDUNDANT AIR SYSTEM An independent secondary underwater breathing system (i.e. pony bottle with first and second stage or a pony bottle supplying a bailout block).

PRIMARY DIVER The diver performing the in water operation

SAFETY DIVER An on-site diver available to assist another diver in the water who is already operating at a site. The Rescuer Diver shall be able to deploy immediately to provide assistance the diver in distress or need thus the Safety Diver must have all equipment don and operational.

90% DIVER A diver dressed to the point where becoming fully dressed and operational would take minimal time. The 90% diver is a back up to the safety diver if they were to be deployed.

SWIFT WATER Water moving at a rate greater than one knot (1.15 mph).

TENDER An individual trained in the responsibilities of diver safety that provides control of search patterns from the surface of the water.

WATER HAZARD ZONE The area that is identified by the IC, Safety Officer or Dive Team Coordinator or that poses a risk to personnel and personnel must be in Personal Floation Devices and helmets.

WATERMANSHIP SKILLS Capabilities that include swimming, surface diving, treading water and staying afloat with a reasonable degree of comfort appropriate to the required task.

1.0 GENERAL REQUIREMENTS

1.1 Members of St. Croix EMS & Rescue operating at water incidents shall meet all the requirements specified in Chapter 2 of NFPA 1670.

1.2 St. Croix EMS & Rescue shall evaluate the effects of severe weather, extreme water conditions, and other difficult conditions to determine whether the present training program has prepared the organization to operate safely.

2.0 AWARENESS LEVEL

2.1 Members of St. Croix EMS & Rescue operating at the Awareness Level shall meet all the requirements in Section 7-2 of NFPA 1670. All members of St. Croix EMS & Rescue certified to the awareness level shall meet the requirements of competent person as defined in Section 1-3 of NFPA 1670.

**ST. CROIX EMS & RESCUE
STANDARD OPERATING PROCEDURES**

Subject: Dive Team Standard Operating Procedures for Training and Rescue/Recovery Operations	Created: 2000, Revised 2004, 2006
	Date: January 2007

2.0 AWARENESS LEVEL (CONT.)

- 2.2 Awareness-Level functions at water incidents shall include the development and implementation of the following:
 - 2.2.1 Procedures for implementing the assessment phase
 - 2.2.2 Procedures for size-up of existing and potential conditions
 - 2.2.3 Procedures for the identification of the resources necessary to conduct safe and effective water operations
 - 2.2.4 Procedures for implementing the emergency response system for water incidents
 - 2.2.5 Procedures for implementing site control and scene management
 - 2.2.6 Procedures for recognition of general hazards associated with water incidents and the procedures necessary to mitigate these hazards within the general rescue area
 - 2.2.7 Procedures to determine rescue versus body recovery

3.0 OPERATIONS LEVEL

- 3.1 Members of St. Croix EMS & Rescue operating at the Operations Level shall meet all the requirements specified in Section 7-2 of NFPA 1670.
- 3.2 For the purposes of these procedures, there shall be four separate water-related disciplines for the Operations Level: dive, ice, surf, and swift water.
- 3.3 Members of St. Croix EMS & Rescue operating at the operations level shall meet all the requirements specified in 7-3.1 through 7-3.5 of NFPA 1670. Members of St. Croix EMS & Rescue operating at the operations level of one or more specific disciplines shall meet the requirements of 7-3.1 through 7-3.5 of NFPA 1670 as they relate to the specific discipline as well as the specific requirements (given in 7-3.6, 7-3.7, 7-3.8, or 7-3.9) of that discipline listed in NFPA 1670.
- 3.4 For personnel operating in the hazard zone, the minimum personal protective equipment (PPE) worn or carried shall include the following:
 - 3.4.1 Personal flotation device (PFD)
 - 3.4.2 Thermal protection
 - 3.4.3 Helmet appropriate for water rescue
 - 3.4.4 Cutting device
 - 3.4.5 Whistle
 - 3.4.6 Contamination protection (as needed)
- 3.5 Operations-Level functions at dive incidents shall include the development and implementation of the following:
 - 3.5.1 Procedures for the recognition of the unique hazards associated with dive operations.
 - 3.5.2 Procedures for serving as surface support personnel
 - 3.5.3 Procedures for the identification of water characteristics
 - 3.5.4 Procedures for the operation of surface support equipment used in water operations
 - 3.5.5 Procedures for procuring the necessary equipment to perform dive operations
 - 3.5.6 Procedures for the safe entry and recovery of divers from the water

**ST. CROIX EMS & RESCUE
STANDARD OPERATING PROCEDURES**

Subject: Dive Team Standard Operating Procedures for Training and Rescue/Recovery Operations	Created: 2000, Revised 2004, 2006
	Date: January 2007

3.5.7 Procedures for participating in safe dive operations in any climate the organization can encounter

4.0 TECHNICIAN LEVEL

- 4.1 Members of St. Croix EMS & Rescue operating at the Technician Level shall meet all the requirements specified in 7-3.1 through 7-3.5 of NFPA 1670.
- 4.2 For the purposes of this standard, there shall be four separate water-related disciplines for the Technician Level: dive, ice, surf, and swift water.
- 4.3 Members of St. Croix EMS & Rescue operating at the Technician Level shall meet all the requirements specified in 7-4.1 through 7-4.6. Members of St. Croix EMS & Rescue operating at the technician level of one or more specific disciplines shall meet the requirements of 7-4.1 through 7-4.6 as they relate to the specific discipline as well as the specific requirements (given in 7-4.7, 7-4.8, 7-4.9, or 7-4.10) of that discipline.
- 4.4 Members of St. Croix EMS & Rescue operating at the Technician Level shall meet all the Awareness and Operations-level requirements specified in NFPA 472, Standard for Professional Competence of Responders to Hazardous Materials Incidents.
- 4.5 Personnel operating within an organization at the technician level shall possess a level of watermanship skill and comfort appropriate to the required task.
- 4.6 Technician-Level functions at all water rescues shall include the development and implementation of the following:
 - 4.6.1 Procedures required to plan a response within the capabilities of available resources
 - 4.6.2 Procedures to implement a planned response consistent with the organization's capabilities
 - 4.6.3 Procedures for conducting both boat-assisted and boat-based rescues
 - 4.6.4 Procedures to conduct a "go" rescue
- 4.7 At the entry level and for any specialties utilized by an organization at the technician level, St. Croix EMS & Rescue shall ensure provision of certification by a nationally recognized agency. The curriculum for such certification shall be oriented toward the needs and operational requirements of public safety diving as defined herein.
- 4.8 Annual fundamental SCUBA skill reviews shall be conducted to maintain public safety diver capability.
 - 4.8.1 Procedures for skin and SCUBA diving, including the use of any associated equipment.
 - 4.8.2 Procedures for the application of physics and physiology as it relates to the underwater environment.
 - 4.8.3 Procedures for the safe use of dive tables
 - 4.8.4 Procedures for dealing with the various underwater environments with which the rescue diver will come into contact.
 - 4.8.5 Procedures for avoiding and dealing with underwater plants and animals.
 - 4.8.6 Procedures for the safe conduct and supervision of dive operations

**ST. CROIX EMS & RESCUE
STANDARD OPERATING PROCEDURES**

Subject: Dive Team Standard Operating Procedures for Training and Rescue/Recovery Operations	Created: 2000, Revised 2004, 2006
	Date: January 2007

4.0 TECHNICIAN LEVEL (CONT.)

- 4.8.7 Procedures for the use of relevant search theory and techniques.
- 4.8.8 Procedures for the identification and management of dive-related maladies including air embolism and decompression sickness.
- 4.8.9 Procedures for recognizing and managing the impact of near-drowning in cold water.
- 4.8.10 Procedures for effective underwater communication systems used by the department.
- 4.8.11 Procedures required to plan a response within the capabilities of available resources.
- 4.8.12 Procedures to implement a planned response consistent with the organization's capabilities.
- 4.8.13 Procedures for conducting both boat-assisted and boat based rescues.
- 4.8.14 Procedures to conduct a "go" rescue.
- 4.8.15 Procedures for self-rescue unique to ice rescue.
- 4.8.16 Procedures for reach, throw, row and go technique rescues unique to ice rescue.
- 4.8.17 Procedures for the use of watercraft, specialty craft, and specialty equipment unique to ice rescue.

5.0 TRAINING REQUIREMENTS

- 5.1 It shall be the responsibility of the Dive Team Coordinator to insure that all personnel have received all annual training and re-certification to this level following the NFPA 1670 document.
- 5.2 It shall be the responsibility of the Dive Team Coordinator to insure all re-certification requirements required by Dive Rescue International or PADI/NAUI for current divers are met.
- 5.3 Any personnel who miss the annual department required re-certification exams and practicals must receive the training within 30 days of expiration of certification date. These individuals will be placed on "no dive" status as of the expiration date until recertification is completed.
- 5.4 All divers are required to be certified in Advanced Open Water and Rescue Diver by PADI or similar nationally recognized certification program within twelve (12) months of joining the team. Basic Open Water (PADI) is a prerequisite to applying. SCEMS will make every attempt to provide training opportunities for all divers to obtain the Rescue Diver Status, however, if no classes are arranged it is the diver's responsibility to complete a course, with SCEMS paying for the course registration and books.

6.0 APPLICATION FOR PUBLIC SAFETY DIVER TRAINING

- 6.1 Selection criteria: When a vacancy exists, the Dive Team Coordinator will advise the EMS Operations Supervisor of SCEMS of the vacancy. The Dive Team Coordinator will post the vacancy and make applications available to interested personnel. A deadline for applications will be announced in the application. After receipt of all applications the Dive Team Coordinator will post the time and date for an orientation session that is mandatory for all candidates to attend that will provide dates and times for all components of the selection process.

**ST. CROIX EMS & RESCUE
STANDARD OPERATING PROCEDURES**

Subject: Dive Team Standard Operating Procedures for Training and Rescue/Recovery Operations	Created: 2000, Revised 2004, 2006
	Date: January 2007

6.0 APPLICATION FOR PUBLIC SAFETY DIVER TRAINING (CONT.)

The EMS Operations Supervisor or EMS Chief and Dive Team Coordinator, shall select candidates.

6.2 Prerequisites for selection:

- 6.2.1 Applicant must be a first responder.
- 6.2.2 Applicant must be a first responder in good standing.
- 6.2.3 Applicant must submit a completed application to the Dive Team Coordinator by the required deadline.
- 6.2.4 Applicant must be Basic Open Water certified by PADI or similar nationally recognized certification agency prior to applying.
- 6.2.5 The Dive Team Coordinator will review the application and submit the name of the applicant to the EMS Operations Supervisor for forwarding to the contracted SCEMS Physician for approval for the candidate to participate in the selection process
- 6.2.6 Applicants must pass the departments Public Safety Diving swim test prior to acceptance as a candidate to the program.

6.3 Selection will be based on the results of the applicants

- 6.3.1 Swim test, which is outlined 7.1 through 7.4.4.2
- 6.3.2 Structured oral interview by the EMS Operations Supervisor, selected members of the dive team and Dive Team Coordinator.

7.0 PUBLIC SAFETY DIVER SWIM TEST

7.1 Diving is one of the most strenuous disciplines in the rescue service. Heavy equipment, long surface swims, currents and adverse conditions can take a heavy toll on a diver. As a result the following swim test is required for entry level applicants and annually by all active team members.

7.2 Being physically fit will increase a diver's safety. Applicants must complete the following watermanship evaluation to be accepted as a candidate for the program. Practice time will be provided prior to the administration of the evaluation for candidates.

7.3 Watermanship Evaluation Parameters: There are four exercises that evaluate stamina and comfort level in the water, each rated by points. The applicant must successfully complete all stations and score a minimum of 12 points to pass the test.

7.3.1 Stamina Exercise 1: 500 yard swim

7.3.1.1 The diver shall swim 500 yards. without stopping using a forward stroke and without using swim aids such as dive mask, swim goggles, fins, and snorkel or floatation device. Stopping or standing up in shallow end of the pool at any time will constitute a failure of this evaluation station.

7.3.1.2 Time to Complete	Points Awarded
Under 10 minutes	5

**ST. CROIX EMS & RESCUE
STANDARD OPERATING PROCEDURES**

Subject: Dive Team Standard Operating Procedures for Training and Rescue/Recovery Operations	Created: 2000, Revised 2004, 2006
	Date: January 2007

10 to 13 minutes	4
13 to 16 minutes	3
16 to 19 minutes	2
More than 19 minutes	1
Stopped or incomplete	Incomplete

7.3.2 Stamina Exercise 2: 15 Minute Tread

7.3.2.1 Using no swim aids and wearing only a swimsuit, the applicant will stay afloat by treading water, drown proofing, bobbing or floating for 15 minutes, with hands only out of the water for the last 2- minutes.

7.3.2.2 Performance Criteria	Points Awarded
Performed Satisfactorily	5
Stayed afloat, hands not out of water 2 minutes	4
Used side or bottom for support at any time	3
Used side or bottom for support twice	2
Incomplete	Incomplete

7.3.3 Stamina Exercise 3: 800 yd. Snorkel Swim

7.3.3.1 Using a dive mask, fins, snorkel and swimsuit (no BCD or other floatation aid) and swimming the entire time with the face in the water, the applicant will swim nonstop for 800yds. The applicant must not use arms to swim at any time.

7.3.3.2 Performance Criteria	Points Awarded
Under 15 minutes	5
15 to 17 minutes	4
17 to 19 minutes	3
19 to 21 minutes	2
More than 21 minutes	1
Stopped at any time	Incomplete

7.3.4 Stamina Exercise 4: 100 yd Inert Diver Rescue Tow

7.3.4.1 Wearing full scuba equipment, and breathing air, the diver will push or pull an inert diver wearing dive gear on the surface a distance of 100 yds nonstop without assistance.

7.3.4.2 Performance Criteria	Points Awarded
Under 2 minutes	5
2 to 3 minutes	4
3 to 4 minutes	3
4 to 5 minutes	2
More than 5 minutes	1
Stopped at any time	Incomplete

**ST. CROIX EMS & RESCUE
STANDARD OPERATING PROCEDURES**

Subject: Dive Team Standard Operating Procedures for Training and Rescue/Recovery Operations	Created: 2000, Revised 2004, 2006
	Date: January 2007

7.0 PUBLIC SAFETY DIVER SWIM TEST (CONT.)

7.4 Mask and No Mask Breathing Underwater

7.4.1 Divers are often in a zero visibility environment under extreme physical and mental conditions. The likelihood of a diver's mask becoming dislodged either partially or fully is an incident a diver should be mentally prepared for at any moment, the diver must be comfortable breathing underwater without his or her mask for an extended period of time. For this reason the applicant will be required to perform the mask and no mask breathing underwater scenario.

7.4.2 Mask and No Mask Breathing: This scenario will be performed in confined water in no more than 4 ft of water and under the direct supervision of the Dive Team Coordinator. The applicant using department scuba gear and mask will be instructed on how to safely breathe from a scuba regulator in water no deeper than 4 ft. When the applicant advises the instructor that he or she is comfortable and is ready to start, he or she will be asked to sit on the bottom of the pool and breathe from the regulator with the mask on for 3 minutes. The applicant will then be brought back to the surface and instructed how to breathe from a scuba regulator with their face in the water and no mask. This will be simulated on the surface first, when the applicant advises the instructor that he or she is comfortable and is ready to start, he or she will be asked to sit on the bottom of the pool and breathe from a regulator for 3 minutes with no mask. This scenario is Pass/Fail.

7.4.3 SCUBA EXERCISE 1: Breathing from Scuba With Mask

7.4.3.1 The applicant will breathe from a scuba unit underwater wearing a mask for 3minutes.

7.4.3.2 Performance Criteria

	Pass/Fail	
Breathes underwater with mask for 3 minutes		Pass
Comes to the surface or stays under less than 3 minutes		Fail

7.4.4 SCUBA EXERCISE 2: Breathing from Scuba Without Mask

7.4.4.1 The applicant will breathe from a scuba unit underwater without a mask for 3 minutes.

7.4.4.2 Performance Criteria

	Pass/Fail
Breathes underwater without mask for 3 minutes	Pass
Comes to the surface or stays less than 3 minutes	Fail

8.0 ACADEMIC AND PRACTICAL REQUIREMENTS FOR TECHNICIAN LEVEL

8.1 After successful completion of the evaluation process and a conditional offer has been given to the applicant, he or she will become a candidate for the next set of Public Safety Diver courses. This course will include instruction in the following areas and will require testing on an annual basis.

8.1.1 Top water rescue and diver tending

**ST. CROIX EMS & RESCUE
STANDARD OPERATING PROCEDURES**

Subject: Dive Team Standard Operating Procedures for Training and Rescue/Recovery Operations	Created: 2000, Revised 2004, 2006
	Date: January 2007

- 8.1.2 Public safety diver open water scuba course
- 8.1.3 Dive Rescue 1 Technician or equivalent course
- 8.1.4 Drysuit use
- 8.1.5 Full face mask
- 8.1.6 Ice diving techniques
- 8.1.7 Boat diving operations

9.0 SAFETY PROCEDURES FOR DIVING OPERATIONS

- 9.1 It shall be the responsibility of the Dive Team Coordinator prior to:
 - 9.1.1 Conduct a Risk Benefit field analysis to identify the risks and determine the benefit of conducting the dive at each site.
 - 9.1.2 Insure that a fully dressed Safety Diver is prepared to immediately enter the water in the event that a diver becomes entangled or needs assistance from the Rescuer Diver prior to any dive operations being initiated.
 - 9.1.3 Develop a plan to transport an injured diver to the nearest operational hyperbaric chamber, or closest appropriate emergency medical facility.
 - 9.1.4 Develop a safety plan for all top water and dive operations prior to any operations being initiated.
 - 9.1.5 No dive operations shall be conducted without a Safety Diver for every diver that is operating below the surface.
 - 9.1.6 All water is to be presumed contaminated; therefore, all open water dives are recommended to be conducted in dry suits to reduce exposure to contamination.
 - 9.1.7 The Dive Tables will be referred to on all dives
 - 9.1.8 No dives will be conducted in depths greater than 100 feet
 - 9.1.9 A three minute safety stop is suggested on all dives
 - 9.1.10 All divers are encouraged to wear a pony tank with separate first and second stage regulators. The pony bottle second stage shall be secured in a department approved necklace around the divers neck.

10.0 BEFORE DIVING OPERATIONS ARE COMMENCED

- 10.1 A Dive Action Plan (DAP) shall be developed
- 10.2 Advance Life Support and medical transport is on site.
- 10.3 Approved communication system fully operational must be in place before any dive operations are initiated. This may include hand signals.
- 10.4 All divers shall be line tended unless conditions otherwise dictate and can only be done off line with the approval of the Safety Officer or Dive Team Coordinator.
- 10.5 All divers shall be technician level and all line tenders must be trained to a minimum of operations level.
- 10.6 The "diver-down" flag shall be prominently displayed during all dive operations unless currents or lack of traffic overhead dictate none is needed.
- 10.7 Enclosed or confined space dives are outside the scope and training of the department and shall not be conducted
- 10.8 Diving operations shall not exceed the no-decompression limits.
- 10.9 Any diver who exceeds the no-decompression limits of the dive tables shall be administered high flow oxygen and transported to an appropriate hospital for these types of incidents
- 10.10 A boat shall be placed in the water to assist during all diving operations. Where terrain, obstructions, ice or size of body of water makes the use a boats impractical this requirement may be omitted.

**ST. CROIX EMS & RESCUE
STANDARD OPERATING PROCEDURES**

Subject: Dive Team Standard Operating Procedures for Training and Rescue/Recovery Operations

Created: 2000, Revised 2004, 2006

Date: January 2007

11.0 THE DIVE SHALL BE TERMINATED WHEN

- 11.1 Whenever the audible low air alert is activated on a Submersible Pressure Gauge.
- 11.2 Dive Tender indicates that due to air consumption rate or emergency that diver is required to surface, and/or
- 11.3 The cylinder pressure has 500 PSI remaining in the cylinder and/or
- 11.4 Loss of approved department communication system, and/or
- 11.5 In the opinion of the Dive Team Leader and/or the Safety Officer the dive should be terminated for safety reasons.
- 11.6 The depth of the dive operation exceeds the department's set maximum depth of 100 feet
- 11.7 A No Decompression Limit is being reached
- 11.8 Ultimate responsibility for safety rests with the individual diver and it is the diver's responsibility and duty to refuse to dive if, in his judgement, conditions are unsafe, unfavorable, or if diving would violate the precepts of his level of certification or training.

12.0 FACTORS TO CONSIDER FOR A RISK/BENEFIT FIELD ANALYSIS

- 12.1 Where Underwater Search & Rescue/Recovery operations are requested, the Incident Coordinator, Dive Team Coordinator or his/her designee should consider the following factors:
 - 12.1.1 Determine if operations at the site will not exceed the department's capabilities.
 - 12.1.2 Is the operation that is being requested a 'Rescue or Recovery Operation'?
 - 12.1.3 Ability to establish a credible 'Last Seen Point' from on site witnesses.
 - 12.1.4 The dive operations will not exceed sixty feet (100') in depth.
 - 12.1.5 The current of the water does not exceed three (3) knots.
 - 12.1.6 The diver's can safely operate in water conditions that are present.
 - 12.1.7 There is sufficient divers, dive tenders and equipment on site to conduct operations.
 - 12.1.8 All safety aspects are considered.
 - 12.1.9 All medical safety issues can be addressed by on site resources.
 - 12.1.10 Assets on site will not meet the demands for a safe operation, are other qualified resources available that can provide support (example: St. Croix County Sheriff's Dept.)

13.0 DEVELOPING THE DIVE ACTION PLAN

- 31.1 Planning of a dive operation shall include as a minimum:
 - 13.1.1 Diving mode (training or operational (rescue/recovery)).
 - 13.1.2 Determine if dive operations will be shore based, boat based or boat assisted.
 - 13.1.3 Surface and sub-surface conditions and hazards.
 - 13.1.4 Emergency procedures are identified.
 - 13.1.5 Approximate number of dives anticipated.
 - 13.1.6 Location(s) of proposed dive(s).
 - 13.1.7 Estimated depth(s) and bottom time(s) (Not to exceed 20 minutes).
 - 13.1.8 Current environment conditions and expected changes.
 - 13.1.9 Proposed work, equipment and other resources needed.
 - 13.1.10 Diving shall be coordinated with other known activities in the area that may interface with the diving operation.

**ST. CROIX EMS & RESCUE
STANDARD OPERATING PROCEDURES**

Subject: Dive Team Standard Operating Procedures for Training and Rescue/Recovery Operations	Created: 2000, Revised 2004, 2006
	Date: January 2007

- 13.1.11 Minimum of three (3) divers on scene (if team is at minimum strength, the next closet Dive Team should be started at the initial dispatch for back-up.
- 13.1.12 Type of search pattern that will be utilized for the operation.

14.0 BRIEFING

- 14.1 All Sector Officers, Divers, Tenders, and Medical Personnel will participate in a briefing before operations are initiated.
- 14.2 An accelerated briefing can be done in a fast rescue mode

15.0 PRE-DIVE SAFETY CHECK

- 15.1 The dive objectives for the operation
- 15.2 Identify all entry and exit points
- 15.3 Review of Hand Signals.
- 15.4 Emergency protocols
- 15.5 Beginning and ending tank pressure
- 15.6 All entry and exit points
- 15.7 Reporting of any physical problems or adverse psychological affects

16.0 RAPID FIELD NEURO EXAMINATION

- 16.1 Prior to the initiation of a dive and upon the completion of a dive every diver must undergo a Rapid Field Neuro Examination and the exam must consist of:
 - 16.1.1 Mental Status:
 - 16.1.1.1 Ask the diver to state his name, where he is, the time of day and most recent activity.
 - 16.1.1.1.1 Evaluate his speech for clearness and appropriateness.
 - 16.1.2 Cranial Nerves:
 - 16.1.2.1 Sight/Eye Movements:
 - 16.1.2.2.1 Have the diver follow your finger with his eyes while keeping his head straight. Move your finger up, down, left and right. Watch for nystagmus.
 - 16.1.3 Facial Movement:
 - 16.1.3.1 Place your fingers at the angle of the diver's jaw and ask him to clench his teeth.
 - 16.1.3.2 Ask him or her to wrinkle their forehead as you smooth the skin.
 - 16.1.3.3 Instruct him to stick his tongue out and move it in all four directions.
 - 16.1.3.4 Check the diver's smile for symmetry.
 - 16.1.4 Head/Shoulder Movements:
 - 16.1.4.1 Ask the diver to tilt his head back and swallow. Watch for his "Adams Apple" to move. Push down lightly on his shoulders, asking him to shrug.
 - 16.1.4.2 Put your hand on one side of the diver's face and ask him to push against it. Do the same with the other side and on the forehead and back of the head.

**ST. CROIX EMS & RESCUE
STANDARD OPERATING PROCEDURES**

Subject: Dive Team Standard Operating Procedures for Training and Rescue/Recovery Operations

Created: 2000, Revised 2004, 2006

Date: January 2007

16.1.5 Hearing:

16.1.5.1 Rub your fingers together close to the diver's ears to identify the sound he is to listen for. Ask him to close his eyes. Move your hand away from his ear and make the sound again. Continue to make the sound as you move your hand back towards the ear. Ask him/her to tell you when he can hear the sound again.

16.1.6 Sensations:

- 16.1.6.1 The objective is to evaluate the sense of light touch and make sure it's equal on both sides of the body.
- 16.1.6.2 Sensations are checked with the diver's eyes closed, pockets empty, and the diver dressed down to light clothing or bare skin.
- 16.1.6.3 Tell the diver that the light touch should feel normal and the same on both sides of his body.
- 16.1.6.4 Evaluate the body in sections, checking the right and left sides at the same time. Overlap the sections slightly.
- 16.1.6.5 Run your fingers across the forehead, down the sides of the face, and along the jaw line
- 16.1.6.6 Then run your fingers down the diver's chest abdomen, front of arms, legs and across the hands.
- 16.1.6.7 Turn him around and run your fingers down his back, buttocks and the backs of the arms and legs.

16.1.7 Muscle Tone:

- 16.1.7.1 The objective is to evaluate muscle tone and determine that it's equal on both sides of the body.
- 16.1.7.1.1 Have the diver bend his arms so that his hands meet in the center of his chest. With his arms bent have him bring his elbows up level with his shoulders (or demonstrate the move and say "Do this").
- 16.1.7.1.2 Tell him to push against you as you push his elbows up, then down, and pull his hands away from his chest and push them back.
- 16.1.7.1.3 To evaluate grip strength in each hand ask him to squeeze two of your fingers.
- 16.1.7.1.4 Leg evaluation, diver sitting: Evaluate both legs. Put your hand on his thigh and ask him to pick the leg up against resistance. Then put your hand under the thigh and ask him to pull down. Put your hands on the front of his lower legs and ask him to push out. Then put your hands behind the leg and ask him to pull back.
- 16.1.7.1.5 Leg evaluation: Diver lying down, evaluate both legs. Ask him to do a straight leg raise as you lightly push down on the leg. Have him bend the leg up and push against your hand as you hold his foot.
- 16.1.7.1.6 Foot evaluation: Have the diver pull his feet up as you push them down and then push against your hands as if pushing on a pedal.

16.1.8 Balance and Coordination:

**ST. CROIX EMS & RESCUE
STANDARD OPERATING PROCEDURES**

Subject: Dive Team Standard Operating Procedures for Training and Rescue/Recovery Operations	Created: 2000, Revised 2004, 2006
	Date: January 2007

16.1.8.1 The objective is to make sure that the diver can hold himself upright, move without being off balance and that he has normal hand-eye coordination. Protect the diver from falling.

16.1.8.1.1 Romberg Test: Have the diver stand upright with his eyes closed, feet together and arms outstretched in front of him. Ask him to stand this way for several seconds. Then ask him to walk in place, bringing his knees up. Eyes remain closed.

16.1.8.1.2 Heel-shin slide: If the diver is lying down, have him place the heel of one foot on the opposite leg, just below the knee. Then have him run the heel down his shin to the ankle. Do both legs.

16.1.8.1.3 Alternating hand movements: Have the diver alternately touch his index finger to his nose and then to your finger, held about 18" (.5 meters) away from his face. Repeat the movement several times and test both hands.

16.1.9 Vital Signs:

16.1.9.1 The objective is to evaluate the findings in the rapid neuro exam with the baseline vitals.

16.1.9.1.1 Blood pressure

16.1.9.2.2 Pulse

16.1.9.2.3 Respirations

17.0 DIVE OPERATIONS

17.1 Upon completion of the Action Plan, Briefing and Pre-Dive check,

17.1.1 Determine point last seen through witness interviews, visual reconnaissance, or physical evidence.

17.1.2 Establish area of probability, considering time down, boat traffic, natural currents and any attempted rescue efforts.

17.1.3 Confirm type of search pattern(s).

17.1.4 Make proper entry to minimize turbidity, and maximize safety.

17.1.5 Search P.L.S. upon initial entry.

17.1.6 If victim is located, begin BLS care immediately upon surfacing, transferring to ALS unit as quickly as possible.

17.1.7 Search., extrication, and rescue of a victim from a vehicle in the water should follow these steps;

17.1.8 When location of the vehicle is established, a marker buoy should be deployed for future reference.

17.1.9 Establish cautious entry into vehicles, if necessary, using one of the following methods:

17.1.9.1 For safety concerns the diver shall perform a visual recon of the vehicle from the exterior

17.1.9.2 If victim is deceased or the dive is in the recovery mode, the diver shall not open the vehicle doors or windows thus reducing chances of loss of evidence for a police agency.

17.1.9.3 If the diver believes that there is a chance of revival for the victim(s) remove from the vehicle after evaluating the safest method to perform removal for the diver.

17.1.10 Anytime a line tended operation is used the diver must be in a department approved harness system.

**ST. CROIX EMS & RESCUE
STANDARD OPERATING PROCEDURES**

Subject: Dive Team Standard Operating Procedures for Training and Rescue/Recovery Operations	Created: 2000, Revised 2004, 2006
	Date: January 2007

- 17.1.11 A Rapid Field Neuro Exam will be conducted on all divers prior to entry and immediately after exiting the water as in 16.1 of this policy.
- 17.1.12 Negative results must be reported to the EMS Sector immediately.

- 17.2 The following are line signals for tethered or one diver down operations.

<p>TENDER TO DIVER</p> <p>17.2.1 1 pull – Are you OK ?</p> <p>17.2.2 2 pulls-Turn and take up line</p> <p>17.2.3 3 pulls-Surface</p>	<p>DIVER TO TENDER</p> <p>1 pull – I'm OK.</p> <p>2 pulls – Give me more line.</p> <p>3 pulls – Emergency-Send Back-up</p>
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- diver 17.2.4 4 pulls- Prepare to be hauled in. 4 pulls – Diver surfacing-Haul in
- 17.2b The following are touch signals for divers working in pairs.

DIVER TO DIVER	
17.2b.1 1 squeeze – O.K.	
17.2b.2 2 squeezes – Move Away	
17.2b.3 3 squeezes – Help	
17.2b.4 4 squeezes – Come to me	

18.0 EMERGENCY PROTOCOLS

- 18.1 Anytime voice communications are lost between the diver and his/her tender, the diver shall be signaled by 17.2 of this document.
- 18.2 Anytime a diver is required to surface due to injury, equipment failure or "out of air emergency", the diver will be treated as if he/she has encountered a pressure related injury and shall be seen by the Medical Sector.
- 18.3 Anytime a diver becomes entangled or entrapped during a dive the safety diver shall be deployed immediately to mitigate and free the diver and to provide the Dive Sector Officer information on the safety of further dives.
- 18.4 Anytime there is a lost or missing diver incident, the Point Last Seen will be identified and marked immediately and a permanent support boat will be stationed at that location.
- 18.5 Any boat used at the Point Last Seen can not moved or used for any other purpose until recovery has been made.
- 18.6 Any equipment that was in place prior to the diver becoming lost shall be left in place and used for assisting in locating the diver at his/her Last Seen Point.

19.0 DECONTAMINATION OF EQUIPMENT

- 19.1 All divers prior to removal of their equipment shall undergo a gross decon consisting of the following:
 - 19.1.1 Diver shall be rinsed off, and
 - 19.1.2 Diver shall have approved cleaning solution provided on department apparatus applied to suit, and
 - 19.1.3 Diver shall be rinsed off a second time.
 - 19.1.4 If diver comes into contact with petroleum based products, such as gasoline, diesel, aircraft fuel or any other biological or chemical agent, the diver will be decontaminated while suit and equipment are still donned. Extreme care shall be given not to further expose the diver and personnel decontaminating the diver to the product. The diver shall be washed with department provided solution and water using a hard bristle brush to scrub the suit The diver and equipment will then be washed down with clean water, this process shall be repeated twice. The

**ST. CROIX EMS & RESCUE
STANDARD OPERATING PROCEDURES**

Subject: Dive Team Standard Operating Procedures for Training and Rescue/Recovery Operations	Created: 2000, Revised 2004, 2006
	Date: January 2007

suit should then be cleaned again at the firehouse and a thorough inspection of the suit for reaction to the chemical should be made. If the product is of an extreme nature and poses a further risk of contamination, is unidentifiable by Haz Mat Personnel or has caused damage to the suit, Disposing of the suit should be considered.

- 19.1.5 All comm. lines, ropes and other equipment used in the dive shall undergo all steps of decon that the suits underwent as outlined in the section.

20.0 RETURN TO SERVICE

- 20.1 All equipment used shall be inventoried prior to the apparatus returning to service.
- 20.2 All equipment shall be cleaned and dried, and properly returned to its compartment or storage container prior to the apparatus returning to service.
- 20.3 Any damaged or missing equipment shall be reported on the proper forms to the Dive Team Coordinator within twenty four (24) hours.

21.0 POST INCIDENT ANALYSIS

- 21.1 Determine if the objectives of the dive were achieved.
- 21.2 If objectives were not met, what factors caused the objectives to not be met and identify what changes in the Dive Action Plan need to occur before initiating further dives.
- 21.3 Identify additional information obtained from personnel involved in the dive.
- 21.4 Insure that all pertinent information has been recorded
- 21.5 Identify any deficiencies that may exist in training or equipment that should be addressed for future operations.
- 21.6 Discuss problems encountered and identify future training objectives to address problems.
- 21.7 Identify those items of equipment that could have eliminated problem and forward recommendation to Dive Team Coordinator.

22.0 BOAT OPERATIONS

- 22.1 It is the responsibility of the IC, Dive Team Coordinator or the EMS Operations Supervisor to determine if the rescue operations will be shore based or boat based operations.
- 22.2 It is the responsibility of the Safety Officer, Dive Team Coordinator and/or the EMS Operations Supervisor that all personnel operating boats for the department are Operations Level trained.
- 22.3 It is the responsibility of the IC, Team Coordinator or the EMS Operations Supervisor to coordinate all boats operating in the area in which divers may be operating.
- 22.4 It shall be the responsibility of the Safety Officer to conduct a safety briefing concerning localized hazards with all boat handlers that are operating at the site.
- 22.5 In the event of other agencies being on site with boats and operating in the area of the divers, it is the responsibility of the Safety Officer to insure that all other agency boat handlers are briefed on the area of operations and insure that a communication's system is establish before initiation of any operations on the water

23.0 COLD WATER/ICE DIVING

- 23.1 For the purpose of this document, COLD WATER shall be defined as water having a temperature below 55 degrees Fahrenheit and the term COLD WATER DIVING shall include diving under ice.

**ST. CROIX EMS & RESCUE
STANDARD OPERATING PROCEDURES**

Subject: Dive Team Standard Operating Procedures for Training and Rescue/Recovery Operations	Created: 2000, Revised 2004, 2006
	Date: January 2007

- 23.2 Diving in cold water requires a much different approach logistically and operationally by Command.
- 23.3 COMMAND - Must be keenly aware of the adverse effects of cold exposure, not only to the divers, but also to all personnel.
- 23.4 Adequate protection from the cold for support personnel, primary divers, back up divers, equipment, victims, witnesses, and command personnel must be established.
- 23.5 Rehabilitation and definitive care measures for cold exposure injury victim(s) shall be addressed.
- 23.6 Cold exposure has been identified as a possible independent factor for increased risk of decompression sickness and for that reason a separate ALS unit should be at the scene of all cold water diving operations.
- 23.7 That unit will be exclusively designated for the treatment and transportation of potentially injured divers.
- 23.8 Since the survivability factors in cold water near drowning incidents are so complex, all operations should be conducted in a "Rescue Mode" for at least one (1) full hour after arrival, unless with reasonable certainty, the time of submersion is determined to be over one (1) hour.
- 23.9 Divers working under ice shall be given a twenty (20) minute window of operation
- 23.10 While working under ice, the diver will be restricted to a working area that will not exceed a radius of 100' from the entry hole.
- 23.11 Personnel should dress for possible long-term exposure to cold climate conditions.
- 23.12 Support personnel should be responsible for the prevention of freezing equipment and all equipment, especially tanks and regulators, must be protected from freezing or cold temperatures due to high probability of failure due to exposure.
- 23.13 A well protected, heated area with water and warm liquids available should be provided for all personnel involved in the incident.
- 23.14 Since exposure to cold water is known to greatly increase diuresis, the nearest toilet facility or suitable site shall be identified, especially for incidents of longer duration or when dry suits are the most appropriate forms of cold protection.
- 23.15 Traction material around the entry hole and work area must be used. The material used can be but not limited to snow fencing, sand, walk boards, wood chips etc.
- 23.16 All divers will have their search line attached to their chest harness using a locking carabiner.

24.0 EMERGENCY PROCEDURES

- 24.1 Anytime voice communications are lost between the diver and his/her tender, the diver shall be signaled by 17.2 of this document.
- 24.2 Anytime a diver is required to surface due to injury, equipment failure or "out of air emergency", the diver will be treated as if he/she has encountered a pressure related injury and shall be seen by the Medical Sector.
- 24.3 Anytime a diver becomes entangled or entrapped during a dive the safety diver shall be deployed immediately to mitigate and free the diver and to provide the Dive Sector Officer information on the safety of further dives.
- 24.4 Anytime there is a lost or missing diver incident, the Point Last Seen will be identified and marked immediately and a permanent support boat will be stationed at that location.
- 24.5 Any boat used at the Point Last Seen shall not be not moved or used for any other purpose until recovery has been made.
- 24.6 Any equipment that was in place prior to the diver becoming lost shall be left in place and used for assisting in locating the diver at his/her Last Seen Point.

**ST. CROIX EMS & RESCUE
STANDARD OPERATING PROCEDURES**

Subject: Dive Team Standard Operating Procedures for Training and Rescue/Recovery Operations	Created: 2000, Revised 2004, 2006
	Date: January 2007

25.0 SITE PREPARATION FOR TRAINING EXERCISES

- 25.1 For training dives, a triangular hole with 10' sides will be cut into the ice.
- 25.2 The cutting operation shall be done in protective attire and using a chain saw.
- 25.3 The section of ice that is cut out shall be made retrievable for securing the hole at the termination of the dive.
- 25.4 Some provision for positive footing for all personnel shall be employed around the hole in any of the above stated operational modes.
- 25.5 Any dive made under ice shall be tended.
- 25.6 Prior to an under ice dive, the diver and tender should confirm the dive plan, the type of search pattern to be used, and review the line signals.
- 25.7 The tender should conduct a "buddy check" of the diver prior to entry.
- 25.8 Any time a diver does not acknowledge voice or hand signals, it must be assumed that the diver is in distress and the back up diver will be sent for assistance.
- 25.9 If the diver becomes separated from the tender line, then the Lost Diver Procedure shall be conducted.
- 25.10 At the termination of dive operations, a medical exam of the divers shall be done.

26.0 DIVING EQUIPMENT

- 26.1 All equipment shall be subject to inspection before and after all dives, tested and certified on an annual basis as defined by the equipment manufacturer.
- 26.2 Only those makes and models of equipment specifically approved by the Department shall be used, with appropriate training.
- 26.3 All inspections, tests and maintenance, must be accomplished by certified personnel or a facility approved by the Department.
- 26.4 All equipment maintenance shall be recorded and logged by the Dive Team Coordinator.
- 26.5 Regulators, first and second stage, shall be environmentally sealed
- 26.6 All Scuba cylinders shall be in current VIP and hydrostatic testing requirements as mandated by regulatory agencies and manufacturer requirements.
- 26.7 Scuba cylinder shall be:
 - 26.7.1 Hydrostatically tested at least every five (5) years.
 - 26.7.2 Visually inspected at least every twelve (12) months

27.0 MEDICAL STANDARDS

- 27.1 All divers shall pass an annual department physical administered by the department physician.
- 27.2 All applicants for diver must comply with 29.2
- 27.3 A diver shall be required to obtain a medical release from the department physician before resuming diving activities after:
 - 27.4 Any injury, illness or surgery that resulted in the diver being off duty due to the injury or being placed on light duty.
 - 27.5 Any diving accident resulting in injury to the diver.

28.0 PERSONNEL RECORDS & DIVE LOGS

- 28.1 The Dive Team Coordinator shall maintain permanent records for each diver.
- 28.2 It shall be the responsibility of the Dive Team Coordinator to maintain a file for each diver that contains all pertinent and regulated forms with current and up-to-date information.

**ST. CROIX EMS & RESCUE
STANDARD OPERATING PROCEDURES**

Subject: Dive Team Standard Operating Procedures for Training and Rescue/Recovery Operations	Created: 2000, Revised 2004, 2006
	Date: January 2007

- 28.3 The Dive Team Coordinator shall be responsible for maintaining permanent records for all scuba equipment, including inspection and testing records, maintenance and damage reports.
- 28.4 All diving accidents requiring recompression or that result in serious injury or death shall be reported to the Chief of the Department and to all local, state and federal agencies.
- 28.5 The Dive Team Coordinator shall maintain a Master dive log for each dive training or operation. The Master Dive Log shall be turned into the EMS Operations Supervisor's Office no later than 24 hours upon completion of the dive.
- 28.6 Each diver shall maintain a dive logbook.
- 28.7 Copies of dive logs are due annually, by January 31, for the preceding year.

29.0 MAINTAINING CERTIFICATION

- 29.1 All department dives must meet the national standard of 15ft. depth & 15 min. bottom time minimum.
- 29.2 All department divers must pass the department annual physical agility assessment and annual watermanship/skills to maintain their certification as a diver.
- 29.3 All department divers must;
 - 29.3.1 Attend six (6) scheduled open water training dives annually, and
 - 29.3.2 One of the dives must be in cold weather.
 - 29.3.3 Make a good faith effort* to respond to 50% of all Dive Team activations. (*This implies that a reasonable attempt is made based on individual availability and schedule. It is assumed that not all individuals will make the first out truck and that St. Croix EMS and Rescue will recognize the efforts of the response.)
- 29.4 No diver may miss 2 consecutive dives without prior approval from the Dive Team Coordinator
- 29.5 All requests must be in writing with times, dates and reason for missed training.
- 29.6 All department divers must maintain their Dive Rescue 1 Technician status by taking and passing their re-certification as required by Dive Rescue International every three (3) years.
- 29.7 If a Public Safety Diver certification has been issued to a dive team member he or she must take and pass the re-certification as required by Dive Rescue International every three (3) years

30.0 LEAVE OF ABSENCE

- 30.1 Dive team members unable to perform the required seven (6) dives or annual training sessions due to a lengthy illness, may be replaced on a leave of absence status by the Dive Team Coordinator or the Health and Safety Officer depending on the expected length of recovery.
- 30.2 Once placed on a leave of absence, the dive team member shall suspend all actual diving functions, including training and operational dives. The diver may still assist the team by performing support functions.
- 30.3 Reinstatement into diving will occur based on the approval of the Dive Team Coordinator or the Health and Safety Officer; Reinstatement shall be based on, but not limited to:
 - 30.3.1 The members physical condition (member may be required to perform entry level skills and/or undergo a physical examination.
 - 30.3.2 Any or all of the reinstatement requirements as stated in the Reinstatement after No Dive Status section of this document

ST. CROIX EMS & RESCUE
STANDARD OPERATING PROCEDURES

Subject: Dive Team Standard Operating Procedures for Training and Rescue/Recovery Operations	Created: 2000, Revised 2004, 2006
	Date: January 2007

31.0 NO DIVE STATUS

- 31.1 The Dive Team Coordinator may put a dive team member on a No Dive Status for the following but not limited to reasons. The status will be given after all resources available to the Dive Team Coordinator have been utilized to correct the situation with the diver. The reason for the status will be documented and cleared through the EMS Operations Supervisor or the Chief of the Department.
 - 31.1.1 The dive team member does not attend required training.
 - 31.1.2 The dive team member fails to complete any of the required certification.
 - 31.1.3 The dive team members' conduct or attitude is not conducive with a safe work environment.
 - 31.1.4 The dive team member poses a possible danger to himself or others.
 - 31.1.5 The Dive Team Coordinator feels the diver needs remedial training.
- 31.2 A dive team member may put him or herself on a No Dive Status at anytime due to health or other reasons, the Dive Team Coordinator must be notified and status reflected on the dive roster. If status change is of a substantial length the diver may have to attend remedial training prior to returning to a Dive Status.

32.0 REINSTATEMENT AFTER NO DIVE STATUS

- 32.1 Reinstatement to Dive Status may encompass one or more of the following
- 32.2 Remedial classroom, pool or open water training
- 32.3 Additional training to updated standards or certification
- 32.4 Physical exam by department physician
- 32.5 Completion of CISD, EAP or Counseling
- 32.6 Complete retraining by attending the departments Public Safety Diving Course
- 32.7 Reinstatement after voluntary No Dive Status due to illness or other simple issues shall not require physical exam by department physician.