



National US&R Response System Operations Manual

Annex C – Water Operations Concept of
Operations

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Urban Search and Rescue Water Operations – Concept of Operations

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Urban Search and Rescue Water Operations – Concept of Operations

INTRODUCTION

The conduct of Urban Search and Rescue (US&R) operations in a water environment has been identified as a critical challenge in many FEMA National US&R Response System (the System) deployments.

As revised by the System's Advisory Organization, and approved by the System, this US&R Water Operations Concept of Operations (CONOP) specifies the recommended minimum capabilities and training for task forces to perform safe and effective US&R operations in a water environment.

The US&R Water Ops CONOP is twofold:

- 1) To embed a Type 1, 14-member "US&R Water Ops component embedded within a Type 1 US&R Task Force; and/or
- 2) To provide (for future consideration) the means to deploy a standalone 14-member US&R Water Operations component from each System task force.

The intent of this initiative is to have all System task forces Swiftwater deployable with a minimum of 28 US&R Water Rescue Specialists trained within two years after implementation of this CONOP.

HISTORY

The System's history of water operations is long and varied, beginning with the first work group recommendations in the early 1990's for all-risk response. Hurricane Allison (1995) compelled System members to conduct life-saving water rescue operations. In 2004, Hurricane Charley and Ivan, US&R operations were often delayed because of the need to request and await the arrival of watercraft from state and Federal partner agencies to transport System resources.

In 2005, Hurricane Katrina and Rita created conditions that required System resources to rely on local, state, and Federal partner agencies and System Sponsoring Agencies (tasked through the EMAC system) to provide watercraft to support operations in flooded cities, towns and parishes. US&R operations were often hampered or delayed by reliance on outside agencies for watercraft.

In 2006 the System's first US&R Water Operations Ad Hoc Work Group meeting was conducted in Menlo Park, California. Recommendations were made to the Operations Group, which were the basis of the System's original Water Operations CONOP.

In 2008, Hurricanes Gustav and Ike created widespread flood conditions in Texas requiring System resources to be transported over water by various Federal partner boat teams in order for them to conduct US&R operations.

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In 2010, Hurricane Irene reemphasized the gaps in System capabilities in the water environment. Watercraft were requested to support US&R operations, but mission-saturated Federal partners were unable to provide resources in a timely manner.

System resources were also placed in the rescue environment encountering fast moving water during Hurricane Sandy (2012), the Larimer County floods (2013), and Hurricane Joaquin (2015).

The totality of these experiences resulted in a consensus: System task forces require their own surface water operations capabilities to accomplish the following strategic goals:

- 1) Mobilize and safely transport System personnel and essential equipment to areas of operations that require watercraft for access (i.e. across waterways or in flooded environments during disasters).
- 2) Conduct search and rescue operations in collapsed structures during water-related events.
- 3) Extract survivors and companion animals trapped by rising flood waters.
- 4) Extract US&R personnel and other responders who have become separated, stranded or trapped by rising flood waters (i.e. conducting Rapid Intervention).
- 5) Conduct waterborne Rapid Needs Assessments (RNA's) when rotorcraft or fixed wing are not available or cannot fly due to unfavorable conditions.
- 6) Provide water access for specialized resources to complete critical tasks (i.e. Communications Specialists establishing repeaters, Structural Specialists inspecting damage, etc.).
- 7) Augment other local, state or Federal water rescue assets.

As a result of the criteria established in this CONOP, System task forces will also meet the standards for Swiftwater/Flood Type 1, 2, 3, 4 & 5 Teams.

CHAPTER 1: DEFINITIONS

This chapter defines the terms used in this CONOP.

US&R Water Operations – US&R operations conducted in the water environment, includes searching disaster areas that have become flooded, conducting rescue operations in collapsed structures inundated by floods, tsunamis, dam failure, or other water-related disasters, accessing and rescuing persons and companion animals trapped by flood waters during disasters, and extracting System personnel and other responders who have become stranded or trapped by flood waters (i.e. conducting Rapid Intervention)..

US&R Water Ops Team Leader – In the context of this document, is the most qualified assigned the position by the Task Force Leader.

Swiftwater/Flood Rescue – Search and rescue in all water environments including swiftwater and flood conditions.

Swiftwater – Water that is moving fast enough to produce sufficient force to present a significant life and safety hazard to a person entering the water (per FIREScope).

Defensive US&R Water Operations – The ability to transport System personnel & equipment to and from operational areas, and to:

- Develop a site survey for an existing water hazard
- Select water rescue personal protective equipment
- Define search parameters for a water rescue incident
- Develop an action plan for a shore-based rescue of a single or multiple water-bound victim(s)
- Conduct a witness interview
- Deploy a water rescue reach device to a water-bound victim
- Deploy a water rescue rope to a water-bound victim
- Escape from a simulated life-threatening situation.

Offensive US&R Water Operations – The ability of System resources to perform search and rescue operations and conduct Rapid Intervention for responders; and to:

- Use watercraft for rescue operations (as designated by AHJ)
- Use techniques appropriate for the water environment to extricate an incapacitated water-bound survivor from the water
- Identify procedures for operation of rope systems particular to the water rescue needs of the AHJ
- Perform a swimming surface water rescue.

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- Demonstrate defensive tactics during a swimming surface rescue with a combative patient
- Supervise, coordinate, and lead rescue teams during operations.

US&R Water Rescue Specialist – A US&R Water Rescue Specialist is trained to perform all objectives listed in NFPA 1006/2008 Chapter 11, Surface Water Rescuer Level 1 and 2, and Chapter 12, Swiftwater Rescue Level 1 and 2, as prescribed within the task book requirements.

Boat Operator – A US&R Water Rescue Specialist responsible for operating the boat during US&R operations in the water environment. This position is responsible for safe boat operations.

CHAPTER 2: OPERATIONAL CAPABILITIES

This CONOP provides the ability to mobilize System personnel and essential equipment to areas of operations that require watercraft for access; search disaster areas that have become flooded; conduct rescue operations in collapsed structures that are inundated in by rising water in disaster situations; reach and rescue persons and companion animals trapped by flood waters during US&R water operations; conduct Rapid Intervention operations; conduct waterborne RNA's when conditions warrant; provide water access for specialized units to complete critical tasks; and augment other local, state or Federal resources during water-related disasters.

2.1 PREPAREDNESS PHASE

System Task Force Representatives or Program Managers shall notify the US&R Branch Operations Section Chief in writing when their task force has achieved operational readiness (complete equipment cache and training for US&R Water Operations and readiness to deploy consistent with this CONOP or their status to respond has changed).

- All System task forces are expected to train a minimum of 28 personnel as US&R Water Rescue Specialists (at least two deep in each of the Water Operations positions) within each System task force based on the standards identified in this CONOP.
- The intent is to train all System US&R Water Specialists as Boat Operators.

2.2 EQUIPMENT

The US&R Water Operations equipment cache is identified in the most current published [FEMA Approved Equipment Cache List](#) (including any approved interim cache lists). It is recognized that there will be some equipment deviations due to regional and individual task force requirements. Each System task force will deploy with a minimum standard of four Jon Boats, two Rubber Inflatable Boats, and eight engines, Personal Protective Equipment (PPE), and associated equipment and supplies.

System task forces will be allowed up to two trailers with a maximum size of 24 feet for over-road transport. There may be other combinations and options for tactical use in the operational theater.

2.3 INVENTORY

The US&R Water Ops equipment cache shall be inventoried according to standard System Logistics policies and procedures. Boat, trailer and equipment logs shall be utilized.

2.4 TRAINING

System members assigned or operating in this capacity shall meet Position Description requirements and have completed the Position Task Book.

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- US&R Water Rescue Specialist training shall be consistent with NFPA 1006 Professional Qualifications of the Technical Rescuer, Chapter 11, Surface Water Rescue Level I and II, and Chapter 12, Swiftwater Rescue Level I and II, which includes boat operations

Position Descriptions – The Position Description includes requirements for boat operator and can be found in the System’s [Training Program Administrative Manual](#) (TPAM).

Position Task Book – The performance objectives identified are from:

- NFPA 1006 Chapter 11, Surface Water Rescue Level I and II
- NFPA 1006 Chapter 12, Swiftwater Rescue Level I and II
- NFPA 1006 Chapter 5 and 6, Rope Rescue Level I and II
- FEMA GPS Awareness Level Definition

Swim Test – In accordance with NFPA 1006, evaluation of watermanship is the responsibility of the Sponsoring Agency/AHJ.

- The following is recommended as a **minimum** evaluation of watermanship for the US&R Water Rescue Specialist and is referenced from NFPA 1006: Complete the minimum swim requirement of 500 yards without stopping using a forward stroke and without using swim aids. Stopping or standing up in the shallow end of the pool at any point during the exercise will constitute a failure. To be completed within 19 minutes. (NFPA 1670, Annex A, 1670-51 Stamina Exercise #1)

Curriculum – The training requirements may be delivered by System task force personnel or contracted to an outside vendor. A recommended curriculum for the lecture portion can be found in Chapters 1 through 4 of the following textbook and Instructor CD.

Textbook: Technical Rescuer, Water Levels I and II by Steve Treinish
Delmar Cengage Learning
ISBN-10: 1-428-32102-0
MSRP Price: \$82.00

Instructor CD: Technical Rescuer, Water Levels I and II by Steve Treinish
Delmar Cengage Learning
ISBN-10: 1-4283-2103-9
MSRP Price: \$165.00

The performance objectives listed in the Position Task Book shall be completed within the work stations of the class.

CHAPTER 3: TACTICAL OPERATIONS

3.1 METHODS OF DEPLOYMENT

System Type 1 US&R task forces shall deploy with US&R Water Operations equipment cache and personnel when directed through an Activation Order issued by the US&R Branch.

3.2 DEPLOYMENT BY GROUND

The Water Operations equipment cache is deployed utilizing existing task force vehicles to transport equipment and to tow boat and/or equipment trailers. Personnel designated as Water Operations Specialists shall be transported with other task force members when imbedded as part of a Type 1 task force response. Task forces shall develop and maintain vehicle and transportation plans for an imbedded 14 person Water Operations Team.

Task forces shall follow the System's current US&R Convoy Standards Program Directive when preparing for transport of the water operations boat and/or support trailers. Any variation from the Convoy Standard that may require additional transportation assets will require approval from the US&R Branch.

In the event that vehicle and equipment cache transportation plans for a deployment include vehicles requiring commercial driver license (CDL), some members of the 14 person Water Operations Team may need to be qualified and licensed to drive any CDL required vehicle transporting water operations equipment. The task force must also ensure that appropriate equipment such as ratchet straps, chains; binders, etc. are provided to tie down boats and equipment into and/or onto boat and/or support trailers.

3.3 DEPLOYMENT BY AIR

The Water Operations equipment cache and boat transport trailer(s) shall be configured to be deployable by air. The equipment cache shall be properly packaged and containerized and all required shipping documentation including hazardous materials packaging and labeling shall be prepared and maintained by each task force. Vehicles and trailers should be pre-certified for air transportation. Joint training and exercises should be conducted with an affiliated airlift facility to ensure that vehicles, trailers, and water operations equipment cache is ready to be deployed by air. The task force shall ensure that appropriate equipment such as ratchet straps, chains; binders, etc. are provided to tie down boats and equipment into and/or onto boat and/or support trailers.

3.4 COMMAND STRUCTURE

The 14 person Water Operations Team shall have a designated Water Operations Leader. In addition to the leader, two squad officers will be assigned based on situational needs. The Water Operations Leader will report to the Task Force Leader or his/her designee.

3.5 STAFFING & PERSONNEL CONFIGURATION

Team consideration should be made for personnel that are cross-trained in water operations and the following disciplines.

- Logistics
- Communications
- Planning
- Medical
- Search
- Hazmat
- Safety

There will be a minimum of two qualified crew members when US&R watercrafts are in operation.

3.6 PERSONAL PROTECTIVE EQUIPMENT

The minimum personal protective equipment (PPE) worn/carried by task force personnel engaging in water operations shall include:

- Personal flotation device (PFD)
- Helmet appropriate for water operations
- Cutting device (knife, scissors, etc.) attached to the PFD
- Whistle
- Locating light (i.e.: strobe, light stick, etc.)
- Throw bags (minimum two per watercraft)
- Footwear appropriate to conditions and operations
- Respiratory protection when conditions warrant
- Eye protection when conditions warrant
- Appropriate gloves
- Thermal protection
- Contamination protection (dry suit) as conditions dictates.
- Headlamp and other lighting appropriate for inclement weather and/or low light conditions

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3.7 GENERAL SAFETY CONCERNS FOR WATER OPERATIONS

Review strategic and tactical objectives, launch point and potential exit points, communications plan (including hand signals), emergency protocols, medical plan, etc.:

- All passengers/survivors shall properly don a PFD.
- A minimum of four spare PFDs should be carried anytime survivors may be encountered.
- Anyone entering the water shall wear PPE that provide contamination protection.
- The depth of the water shall be assessed prior to entry.
- Ensure that boat team capabilities are adequate for conditions encountered.
- All boats shall have radio communications with land based task force members.
- On navigable waterways boat operators shall have communication capability with commercial vessels in the area using marine band radios.
- Boat teams need to be prepared for extenuating developments such as companion animals or a combative survivor.
- Team members should be aware of conditions that produce heat stress, dehydration, hyperthermia and hypothermia.

3.8 SAFE BOATING OPERATIONS

- Operation of a boat should be in accordance with the boat manufactures recommended specifications and boat operations training.
- When appropriate, rescuers should provide for downstream safety.
- It is recommended that boat teams operate in tandem when possible.
- Special consideration should be used with flat bottom boats as they can become unstable in moving water.
- Boats used in night operations shall have appropriate navigational lights.
- Boat operators and Water Rescue Leader should monitor weather and “sea-state” conditions to assist in decision making for use of boats.

3.9 SIZE UP

Determine assignment from AHJ and/or the US&R IST. Missions requiring US&R Water Ops capabilities for any part of the operations shall be coordinated, conducted, and managed based on the principles herein.

Determine the nature and scope of the US&R water operations (information from AHJ, direction from Incident Command, interview witnesses, etc.). After receiving a task requiring US&R Water Operation capabilities, Task Force members shall assess water operation conditions, hazards, situation and needs, including:

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- Water condition risk benefit analysis (inundation with still water, inundation with moving water, natural or manmade waterway, strainers and other navigation hazards, potential for additional inundation such as levee failure, dam failure, storm surge, tsunamis, flash flooding, mud & debris flows, etc., potential for still water to become moving water), potential water contamination (all water should be assumed contaminated until determined otherwise), and other conditions and hazards.
- Evaluate your team’s capabilities relating to the above water conditions. Water and water features can be deceiving in fast moving water. Determine if the conditions at scene will exceed your team’s capabilities.
- Weather conditions that may affect the safety and effectiveness of US&R Water Ops. Be cognizant of weather events in the total runoff area for the waterway in which you are operating.
- Determine the most appropriate watercraft to conduct/support US&R operations in the specific water environments identified.
- The need for additional resources to conduct or support US&R Water Ops (including additional task forces and watercraft, high water vehicles, rotary airlift for deployment to remote locations, etc.).
- Considerations for useable daylight hours. (Time of day). Can you deploy your team, conduct operations and retrieve all members before loss of light. Current equipment capacity (cache) does not support night operations. They should be conducted only in extreme circumstances.
- Other factors that may affect the viability of US&R Water Ops.
- Conduct a Risk Benefit factor field analysis to identify the risks and determine the benefit of conducting US&R Water operations.
- Determine the strategy and tactics for the US&R Water operations.

3.10 SEARCH OPERATIONS IN WATER ENVIRONMENT

The most effective search strategy should blend all tactical capabilities into a logical plan of operation. The following is general search strategy in a waterborne environment.

One of the initial determinations that supervisory personnel may have to make at the inception of a mission would be what area should be searched first. There may be many structures damaged or surrounded by water that require attention. An area may be segmented by city block or other easily definable criteria. Search operations should be conducted in accordance with Search Strategy & Tactics Handbook. In the event of high flood waters, consideration should be given to single story occupancies as opposed to multistory. Attention focused on roofs and in attic spaces. Occupancies that present the highest likelihood of survivability in terms of type of construction and the number of potential survivors would receive priority. (Refer to the Structure Triage, rapid Recon and Assessment Handbook.) All locations searched will be identified and logged with a GPS coordinates. Locations will be marked, documented and mapped.

3.11 SEARCH AND RESCUE IN COLLAPSED STRUCTURES IN THE WATER ENVIRONMENT

The tactics for searching structures compromised by water will depend on the depth of the water remaining in the structure. If the water has been evacuated from the structure, the search and rescue operations will be consistent with current standards established in the FEMA Structural Collapse Technician Curriculum.

If water remains in the structure, a thorough risk benefit analysis must be completed. Significant damage may be sustained and unable to be assessed due to being underwater.

If water remains in the structure, it is probable that survivors will move to the highest level of the structure, specifically the attic space. Boat crews must be prepared to perform inspection holes and breach roofs to gain access to the attic space. In no case, shall search and rescue operations be conducted that require rescuers to be exposed to a subsurface environment.

Recommended tool cache for search operations from a boat:

- Two – Forcible entry tools: Axe with cover, Halligan etc.
- Two – Rope throw bags
- Four – Survivor PFDs
- One – Chain Saw with protective cover-optional or stage at launch site
- Two – GPS
- Four – Marking Paint
- 100 – Marking stickers
- One – Search Camera
- One – Thermal Imaging Camera
- One – Atmospheric monitor
- One – Hot Stick
- One – Companion animal essentials
- Four – Flash lights

3.12 LAUNCH OPERATIONS

During urban flooding situations, alternative boat launch locations may be needed. Teams may need to utilize flooded roadways, ramps, bridge approaches as launch ramps. Partnering with local or military assets may prove valuable as they have high clearance vehicles to transport over areas that are too shallow for launch of a boat. When the water is too deep for high clearance vehicles, then the boat can be launched from the cargo area. Any launch area

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should be evaluated for the possibility of being unusable due to high or low water conditions/hazards. Team members should make sure the ramp is clear. Get out and look. Inspect the end of the ramp that is under water. The inspection should determine if the ramp can support vehicles and trailers. Launching techniques should be in accordance with agency training. With the parked trailer in place, use the winch to ease the boat into the water. If the ramp is slippery, you might need wheel chocks to keep the tow vehicle and trailer in place. Once the boat is afloat and secured, detach the winch cable from the boat. Rewind the cable and park the trailer nearby. Boats may need to be carried until the water is deep enough to float. Plan for alternate launch/recovery sites due to changes in water levels

3.13 SECURING BOAT

Task Force personnel should refer to their boat operator course for general methods of securing and anchoring procedures and considerations. Boat crews should utilize straight edges of boat to press on structural members of building. The boat operator should apply light forward pressure to the building from the boat to hold the boat in place. Also, boat crews can utilize rope lines from the boat to secure it to a structure. When securing the boat to a structure, the boat should be tied off via two (2) locations, as dictated by the boats alignment to structure. After boat is secured to structure, shut down power to motor. The boat operator shall routinely check anchor points to ensure holding ability, as fluctuations of weather conditions, and tactical considerations may dictate movement of the boat. When loading survivors or evacuees onto the boat or when using the boat as a working platform at least one boat operator shall be on the boat.

3.14 RECOVERING A SURVIVOR

Recovering a survivor from a structure – System task forces may be assigned to search and rescue survivor from a partially collapsed structure that is completely surrounded by water. Entry to a structure should be commensurate with the direction of the Division Supervisor or Incident Commander. Hazards found at a collapsed structure should be mitigated effectively before entering. All rescuers and survivor shall wear an approved PFD when on the boat. If entry into the water is necessary, personnel entering the water shall wear a dry suit for contamination protection. When loading or off loading, if possible, secure boat to structure. When rescuers or survivors are unloading, the boat crew should be monitored for weight distribution. The use of a Stokes litter with a floatation kit is mandatory when transporting a survivor with spinal injuries.

Recovering a survivor from the water – Teams should refer to their boat operator course for general information regarding rescuing a survivor from the water.

- Survivor pick off from a fixed object or location
 - Talk to survivor instructing them not to jump to boat.

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- Approach and leave shore or object slowly in a ferry perpendicular to shore to prevent damage to boat.
- Utilize power to stabilize boat during transfer of survivor to boat
- Maintain positive control of the boat at all times.
- Approach into a fixed object with control and survey hazard.
- Nudge fixed object and press bow against it with sufficient power to stabilize boat against it.
- Crew members assist the survivor into boat.
- Ferry away from the object under control without striking the object or bottom of the boat.
- Floating Survivor Pick Up
 - The crew maintains eye contact on floating survivor and points.
 - The boat operator focuses on piloting the boat and maintains situational awareness.
 - The bow quarter is presented to the survivor to assist the crewman grasping the survivor and assists the survivor into boat.

3.15 HELICOPTER OPERATIONS

The transportation of boats and rescue crews to operational sites by helicopter may be dictated by the complexity of the incident. System personnel should take into consideration the size of the boats, motors and associated equipment in addition to the crew when requesting helicopter resources. The helicopter crew chief will dictate the securing of boats and equipment.

3.16 COMPANION ANIMAL RESCUE

The [*Pets Evacuation and Transportation Standards Act*](#) (PETS) was made an amendment to the Robert T. Stafford Disaster Relief and Emergency Assistance act on 6 October 2006.

Responders are required to take in to account pet owners, household pets and service animals when engaging in emergency operations. This act does not apply to horses, cattle or any livestock.

Use caution when transporting animals on boats. If possible, secure the safety of humans first and then return for animals, in accordance with the PETS amendment of the Stafford Act.

Precautions should be taken to protect the survivor and rescuers from adverse actions by any animal taken on board a boat during rescue operations. Consider the use of muzzles and restraints. The boat team(s) must communicate with the collection point the number, size and condition of animals being rescued.

CHAPTER 4: DECONTAMINATION

Decontamination (Decon) operations shall follow procedures identified in [Annex B - US&R Operations in a Contaminated Environment](#).

4.1 HAZARDOUS MATERIALS & DECONTAMINATION FOR WATER ENVIRONMENT

US&R water operations may include working in bodies of water contaminated with hazardous substances or microorganisms harmful to humans and canines. The water operations team shall have the ability to decontaminate all personnel, canines, PPE, boats, trailers, and water operations cache equipment following operations in contaminated water environments.

Waters may contain various chemical and biological waste products. This may be the result of saturated ground, the overwhelming of sewage and septic systems, or industrial run-off. Potential contamination is always a consideration when entering floodwaters; therefore, all appropriate PPE, such as dry suits, will be used. Gross Decon should be performed after each entry. Completion of exposure reports is recommended for all entries into floodwaters.

4.2 PERSONNEL

After exiting the water, even for short periods during the operational period, members should go through a scrub gross Decon wash with soap and clean water. Remove gloves and wash hands and face with clean water and anti-microbial soap. At the end of the duty period, members should go through a gross Decon scrub wash with soap and clean water before any safety gear is removed. Wash hands and face with clean water and anti-microbial soap after removing all safety gear. Members should shower, using antimicrobial soap, before leaving the scene if possible or as soon as possible thereafter and change into clean clothes.

All efforts to support AHJ certified industrial/environmental hygienist to test and monitor water quality affected area of operation of rescue personnel.

Decon procedures should be used any time hazardous materials (hazmat) are identified or likely to be present. These include areas of sewage contamination as well as agricultural and chemical contamination. These areas should not be entered, if possible. Limiting the number of personnel exposed to the water should be the top priority of the Water Rescue Leader. Support for Decon should be arranged before units are committed to the contaminated area. **Water samples should be taken for testing from areas entered by the team.**

The Medical Team manager should solicit input from the Hazardous Material manager regarding potential hazardous materials exposure, environmental monitoring and decontamination information.

4.3 HAZARDOUS MATERIALS / BIOLOGICAL HAZARDS

The following is a list of common illnesses associated with exposure to flood waters:

- Gastrointestinal illnesses following ingestion of contaminated water or food
- Infectious hepatitis or aseptic meningitis from viruses in sewage contaminated water
- Leptospirosis following exposure to flood waters contaminated by animal urine
- Intestinal bacteria such as: E. Coli, Salmonella, Shigella, Hepatitis A Virus, and agents of typhoid, paratyphoid and tetanus

4.4 EQUIPMENT DECON

Dry suits shall be cleaned in accordance with the manufacturer's recommendations. When contaminated, equipment should be sprayed with bleach solution** or other agents as recommended by on-scene Hazardous Materials personnel and allowed to stand a minimum of fifteen minutes. Thoroughly rinse all treated equipment with clean water and allow it to dry before storing with other equipment. Bag any equipment that cannot be dried for the return trip to the base. Wipe with bleach solution** any surfaces inside vehicles that might have come in contact with wet safety equipment during the duty period. Units requiring Decon should be taken out of service until all equipment has been cleaned and dried.

* Gross Decon Wash: This is a two-stage process that is set up along a Decon corridor. All run-off solutions are retained for proper disposal. Persons implementing the corridor should be protected by splash gear. It is recommended that qualified Hazardous Materials personnel be requested to implement this procedure.

- Rescuer in safety gear is scrubbed with brushes using a clean water and soap solution. Any contaminated tools are left behind here for cleaning.
- Rescuer is rinsed with clean water.

** Bleach Solution: Bleach solution should be made using 1 ounce of Sodium Hypochlorite 5% (household bleach) for every one gallon of clean water. This will yield a 20,000 ppm solution of bleach.

4.5 DECONTAMINATION OPERATIONS

- Pre-Plan contamination reduction and Decon procedures for all phases of offensive and defensive US&R Operations.
- Staff the Decon corridor under the supervision of Hazmat Specialists. Any task force member may be required to assist with Decon.
- Assign appropriate monitoring equipment to the Decon corridor.
- Remember that task force Decon capabilities are intended for task force personnel and a limited number of survivors rescued by the task force(s).

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- Secure support from local jurisdictions or other agencies for water supply.
- Decon operations when implemented for Water Operations will consist of emergency Decon. This will allow for minimal equipment in a boat.
- The Decon equipment will consist of gear found in the Task Force cache and water supply by the local jurisdiction.

4.6 HAZMAT SPECIALIST ASSIGNED TO MANAGE DECON CORRIDOR

The Hazmat Specialist assigned to Decon Corridor:

- Selects the appropriate place in the warm/contamination reduction zone to set up the Decon system;
- Implements the “standard” Decon system unless directed otherwise, (in consultation with Hazmat Manager and Safety Officer);
- Determines the proper level of PPE for Decon personnel;
- Ensures adequate staffing for the Decon process;
- Procures a water supply for the Decon operation;
- Prepares for Decon of rescued, non-ambulatory survivors;
- Briefs the search and rescue teams on the Decon process before they enter for work;
- Coordinates activities with the medical group to ensure they are ready to receive any patients from Decon; and
- Coordinates the disposal of solid and liquid waste from the Decon process with the IST.

CHAPTER 5: DEMOBILIZATION PHASE

Demobilization shall be consistent with the existing System demobilization process, with the following considerations:

- Boat trailers that have been submerged in water during operations shall be fully inspected prior to departing the training or incident site. The trailer frame, tires, wiring, lighting, wheel lugs, and hubs and bearings shall be inspected to identify damage or deficiencies that may cause breakdowns or problems during transport to the task force home base.

CHAPTER 6: RETURN-TO-READINESS PHASE

Return-to-readiness shall be consistent with the existing System return-to-readiness process, with the following caveats:

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- The task force, including the water operations team in coordination with their task force Logistics Manager, is responsible to return the water operations equipment cache and support trailer(s) to a state of readiness upon return from training or deployment. This will include replacement of lost or expendable items; repair or service to damaged or out of service equipment; additional Decon if not properly completed prior to departing the training or incident site; inspection and inventory of all equipment, supplies and personal protective gear; and preventative maintenance as required for operational readiness and storage.
- After-action reports and documentation shall be completed when required.

CHAPTER 7: REIMBURSEMENT

Reimbursement of personnel costs, task force equipment and miscellaneous other approved costs shall be managed in accordance with the host agency's Response Cooperative Agreement and the current System policy concerning reimbursement. Equipment for resupply of the Water Ops cache shall be coordinated through the assigned IST or the US&R Branch Logistics Section.

CHAPTER 8: SUPPORTING DOCUMENTS:

- Water Operations Equipment – Interim Cache List
- Water Rescue Specialist Position Description
- Water Rescue Specialist Task Book
- US&R Boat Operator Position Description
- US&R Boat Operator Task Book

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