



GENERAL ORDER

GENERAL ORDER 330.05

Surface Water and Flood Rescue Incidents

Emergency Services Bureau

Issue Date: 11/30/2000

Revision Date: 03/06/2014

1 APPLICABILITY

2 All Personnel

3 POLICY

4 The Howard County Department of Fire and Rescue Services (Department) shall set forth guidelines that
5 assist the incident commander in assessing the hazard, identifying the level of operational capability, and
6 establishing operational criteria when responding to surface water and flood rescue incidents. The
7 achievement of these objectives will help prevent and reduce the severity of accidents, injuries, and
8 exposures to both Department members and the citizens served by the organization. The well-being of
9 members or citizens shall not be risked for any activity that is not essential to the immediate protection
10 of life. No Department member shall conduct, or participate in, an activity for which he/she is not trained
11 and/or properly equipped to handle.

12 DEFINITIONS

- 13 ➤ **Downstream** - is the general direction of water movement (where it's flowing to).
- 14 ➤ **Flooding** - floods may very well include swift water circumstances, but are usually referencing
15 larger areas. Floods may result from weather or manmade circumstances. All flood water should
16 be considered hazardous/contaminated; many sanitary sewer systems overflow when inundated
17 with flood water resulting in a release of raw sewage.
- 18 ➤ **Primary search** - Known also as a hasty search is a search of the immediate area for the victim(s).
19 Generally, the search is conducted along the banks of the moving water in a downstream
20 direction from the point last seen or the last known point.
- 21 ➤ **River Right** - the right side of the flowing body of water when looking down stream.
- 22 ➤ **River Left** - the left side of the flowing body of water when looking down stream.
- 23 ➤ **Static Water** - lakes, ponds and water retention systems that contain no tidal or moving water.
- 24 ➤ **Swift Water** - water moving at a rate greater than one knot (1.15 mph).
- 25 ➤ **Tag line** - this rope must float and is not to be attached to the rescuer, *unless* the rescuer is a
26 special operations team member, trained to the technician or specialist level, who is wearing a
27 Class V Personal Floatation Device.
- 28 ➤ **Tension diagonal** - a fixed rope system held or placed across a swift water environment at a 45
29 angle to the current vector. This is a downstream back-up safety technique.
- 30 ➤ **Throw bag** - is at least 70' of polypropylene or Spectra rope contained in a nylon bag.
- 31 ➤ **Upstream** - is the opposite of the general direction of water movement (where it's coming from).



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- 32 ➤ **Water rescue personal protective equipment (PPE)** - personal equipment required to protect
33 rescuers from physical dangers posed by exposure to in-water hazards and also those hazards that
34 are associated with the climate and the adjacent area. Awareness and operations level trained
35 members utilize **Red** Type III Personal Floatation Devices (PFD) and **Red** water rescue helmets.
36 Special Operations Team members utilize **Yellow** Type IV Personal Floatation Devices and **Yellow**
37 Water Rescue Helmets. All members should be utilizing PFDs equipped with emergency strobe
38 lights, rescue knives and a whistle.
- 39 ➤ **Watercraft** - staffed vessels that are propelled across the surface of a body of water by means of
40 oars, paddles, water jets, propellers, towlines, used to transport personnel and equipment while
41 keeping their occupants out of the water.
- 42 ➤ **Incident Commander (IC)** - is the individual responsible and accountable for managing the entire
43 incident. There is one incident commander for an incident at any given time.
- 44 ➤ **Incident Safety Officer (ISO)** - is responsible for overall incident safety throughout the rescue
45 operation, pursuant to Department policy, Incident Command System. This individual shall report
46 directly to the Incident Commander. The individual assigned as ISO by the Incident Commander
47 shall meet the requirements of NFPA 1521, Standards for Fire Department Safety Officer.
- 48 ➤ **Technical Safety Officer (TSO)** - a position assigned by the Incident Commander, is responsible for
49 the safe conduct of all operations in the technical rescue group of the Incident Command System.
50 This individual shall be a Special Operations team member or an individual who possesses
51 knowledge, training, and experience pertinent to the type of technical rescue being conducted.
52 The Technical Safety Officer shall report directly to the Incident Safety Officer.
- 53 ➤ **Awareness Level** – per NFPA 1670, this level of Swift Water Rescue training requires Department
54 personnel to size-up existing and potential conditions; identify resources necessary to conduct
55 safe and effective operations; implement site control and scene management; recognize general
56 hazards associated with the incident and procedures necessary to mitigate these hazards; and
57 determine whether the emergency scene is a rescue or body recovery incident.
- 58 ➤ **Operations Level** – per NFPA 1670, this level of Swift Water Rescue training requires Department
59 personnel to perform all the techniques of the awareness level, plus assess moving water
60 conditions, characteristics, and features in terms of hazards to the victim(s) and rescuer(s);
61 determine the method of victim(s) entrapment; use tag lines and tension diagonals; and perform
62 self-rescue and survival swimming in swift/flood water.
- 63 ➤ **Technician Level** – per NFPA 1670, this level of Swift Water Rescue training requires Department
64 personnel to perform all the techniques of the operations level, plus develop and implement a
65 plan employing rope rescue techniques in the water environment; conduct both boat-assisted and
66 boat-based rescues; and conduct operations in and/or on the water.
- 67 ➤ **Specialist Level** – per NFPA 1670, this is an individual who has technical expertise and practical
68 knowledge with water rescue scenarios such as a Public Safety Diver or Swift Water Flood Boat
69 Operator. This person may augment on-scene activities by providing essential information or
70 support in their specialized field.

PROCEDURES

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Each response to a water incident shall be evaluated upon arrival by the Incident Commander to assess the risk to Department personnel.



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75 The well-being of personnel and/or citizens shall not be risked for any activity that is not essential to the
76 immediate protection of life.

77

78 The priority for rescue shall be:

- 79 • Yourself;
- 80 • Other responders;
- 81 • The victim(s).

82

83 All operations at the scene of a water rescue/recovery incident shall be performed in a safe manner
84 consistent with the identified level of operational capability. No Department member shall conduct, or
85 participate in, an activity for which he/she is not trained, certified and/or properly equipped to handle.

86

87 When conducting a training exercise, body recovery, evidence search, incident involving animals, or other
88 operations not essential to the immediate protection of life, the Incident Commander shall utilize the
89 same procedures employed during an actual rescue operation but at a level of urgency commensurate
90 with the risk/benefit analysis.

91

92 All Department career personnel shall be trained to the Awareness level of Surface Water/Swift Water
93 Rescue.

- 94 • Training for volunteer personnel may be requested through Howard County Volunteer Training
95 Board.

96

97 Only technician and specialist level trained and certified personnel shall be allowed to enter moving
98 water, *unless* the water level is below the knees, not moving and does not pose a significant hazard to
99 personnel safety. **All water entry requires the entrants to be properly attired and to probe the ground
100 ahead for continuity and stability while walking in water.**

101

102 It is the intent of this policy to follow recommendations contained within;

- 103 • NFPA 1670, Standard on Operations for Technical Rescue Incidents
- 104 • Department General Order 300.02, Accountability
- 105 • Department General Order 300.04, Mayday
- 106 • Department General Order 300.07, Incident Command System
- 107 • Department General Order 300.11, Rapid Intervention Crew
- 108 • Department General Order 330.04, Technical Rescue Incidents

109

110 GUIDELINES FOR INITIAL OPERATIONS

111 The first arriving officer shall establish command pursuant to Department General Order 300.07, Incident
112 Command System.

113

114 The Incident Commander shall attempt to identify, locate and secure a witness as soon as possible; this
115 will help in identifying the problem and locating the victim(s).

116

117 The Incident Commander, or designee, should access maps, pictometry, and all other available
118 information, and have the witness sketch a map, as needed.



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119 Conduct on scene assessment, to include;

- 120 • Securing the scene, establish safety and exclusion zones, and announce the appropriate level of
- 121 personal protective equipment for the operation.
- 122 • Determine access points/establish point of entry accountability.
- 123 • Determine location and number of victims.
- 124 • Determine activities of victim(s) prior to incident.
- 125 • Determine mechanism of entrapment or nature of emergency.
- 126 • Assess time of day (project lighting needs) and environmental factors (weather).
- 127 • If submersion of the subject(s) is involved, determine length of time submerged for considerations
- 128 for potential dive team incident action planning.

129
130 The Incident Commander shall assess the risk to Department personnel and communicate the scene size-
131 up and hot zone to response personnel.

- 132 • If the Incident Commander determines that the incident is beyond the capabilities of Department
- 133 personnel currently on the scene, he/she shall immediately request Howard Communications to
- 134 dispatch the Special Operations team to the scene. Upon arrival, the Special Operations team will
- 135 assist with the rescue operations as directed by the Incident Commander.

136
137 Prohibit entry of untrained personnel (and citizens) into the warm and hot zones. All observers, citizens,
138 media representatives, are to be kept far enough away from the incident as to not interfere with the ever
139 expanding operation or responding units.

- 140 • Under the direction of the Incident Commander, unprotected and untrained responders must
- 141 remain at least 20 feet from the water's edge.

142
143 Recognize and identify hazards specific to the water rescue environment. Hazards can include, but are
144 not limited to, the following:

- 145 • Water volume, velocity, temperature and depth.
- 146 • Debris and hazardous materials.
- 147 • Hydraulics, strainers and other water features and effects.
- 148 • Adverse environmental conditions.

149
150 Locate/ Access the Victim. Command may need to deploy a reconnaissance group or hasty team to the
151 point last seen or last known point of the victim(s) to attempt to determine their exact location and
152 nature of injuries. When at all possible, the recon group or hasty team should be staffed and equipped to
153 provide immediate rescue of the water born victim if possible.

154
155 After evaluating the information received during the scene assessment and developing an effective
156 incident action plan, review the resources on location and en route to determine if any additional
157 resources are needed.

158 **SCENE SAFETY**

159 The Incident Commander shall assign an Incident Safety Officer for the duration of the incident. The
160 Incident Safety Officer responsibilities shall be pursuant to Department General Order 330.04; Technical
161 Rescue Incidents, Guidelines for Scene Safety at Technical Rescue Incidents.



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- 162 ○ The Incident Safety Officer shall be responsible for identifying hazards and mitigating them if
163 at all possible. Typical water rescue hazards include, but are not limited to, slips, trips, falls, and
164 adverse environmental conditions, etc. Information regarding hazards that cannot be mitigated
165 shall be communicated to the Incident Commander and to all personnel operating at the scene.
166 ○ All operational members working within 20 feet of any water shall wear, as a minimum, a
167 departmental-approved PFD (Class III or Class V or Class III/V), appropriate foot protection,
168 helmet, and carry a throw bag.
169

170 A Technical Safety Officer (TSO) shall be assigned to assist the ISO whenever technical resources are being
171 utilized (i.e., the rescue operations are beyond awareness level techniques), this shall be pursuant to
172 Department General Order 330.04; Technical Rescue Incidents, Guidelines for Scene Safety at Technical
173 Rescue Incidents.

174 **GUIDELINES – OPERATIONS LEVEL TRAINED PERSONNEL**

175 The Incident Commander shall decide whether to operate in the rescue or body recovery mode, based on
176 the information available, conditions and hazards present.

- 177 ● If the Incident Commander determines that the incident will be a rescue, then operations must be
178 initiated as soon as possible with the proper equipment and qualified swift water-trained
179 personnel.
180

181 All rescue operations are to be conducted in a low risk to high risk order. The risk/benefit of each
182 operation shall be considered by the Incident Commander, along with the Incident Safety Officer and/or
183 the Technical Safety Officer, prior to implementation.
184

185 Members trained at the operations-level may be used as upstream spotters or downstream safety
186 personnel when needed.
187

188 On incidents located on rivers and streams, after upstream and downstream personnel are in position,
189 members with swift water operations level training are authorized to conduct any of the following three
190 low risk techniques for rescue operations after attempting to provide the victim with a PFD:

- 191 ● **TALK:** Talk the victim into self-rescue. If possible, talk the victim into swimming to shore or
192 assisting the rescuers with his/her own rescue. If a victim is stranded in the middle of moving
193 water, this operation is **NOT** recommended.
194 ● **REACH:** Reach out to the victim, extending a hand or other object such as a pike pole or inflated
195 fire hose, to remove the victim from the water.
196 ● **THROW:** If the victim is too far out in the moving water to reach, rescuer shall attempt to throw
197 the victim a throw bag or some piece of PFD. Once the victim grabs the throw bag, the rescuer
198 shall pendulum the victim to the nearest shore.
199 ● Fire and rescue personnel should be cognizant of the effects weather and water exposure has on
200 victims, most water born victims may not be capable of assisting in their own rescue.
201

202 If the Incident Commander determines that the incident will be a body recovery, then operations are to
203 proceed in a manner that presents limited risk to Department personnel.
204



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205 **GUIDELINES – TECHNICIAN LEVEL TRAINED PERSONNEL**

206 When the rescue operation is of high risk or the Incident Commander is unsure of the resources available
207 on the scene, the Incident Commander shall have Communications dispatch the Special Operations team
208 to the scene.

209
210 Only technician and specialist level trained Department members shall be allowed *in* or *on* moving water
211 in order to attempt a rescue operation.

212
213 Once all of the appropriate/applicable tasks listed on the Special Operations Swift Water and Flood
214 Rescue Tactical Operation Guide have been completed and the personnel of the operation have been
215 briefed, a rescue may commence.

216
217 Once upstream and downstream personnel are in position, members with swift water technician level
218 training are authorized to conduct the following high risk technique for rescue operations:

- 219 • **ROW:** Boat-based operations require that the water craft be attached to some type of tether
220 system. Qualified personnel shall be assigned to build any rigging system that will be required.
221 Personnel assigned to a boat shall be properly attired and carry/maintain radio communication
222 with the Incident Commander at all times.

223
224 The Incident Commander shall establish a rehab area to provide the rescuers with medical assessment,
225 nutrition, and hydration during the extended rescue operation.

226
227 The Incident Commander shall establish decontamination for all personal that enter contaminated or
228 potentially contaminated water.

229
230 **GUIDELINES – SPECIALIST LEVEL TRAINED PERSONNEL**

231 Only technician and specialist level trained Department members shall be allowed *in* or *on* moving water
232 in order to attempt a rescue operation.

233
234 Once upstream and downstream personnel are in position, members with swift water specialist level
235 training are authorized to conduct the following extremely high risk technique for rescue operations:

- 236 • **GO:** Prior to entry in the moving water, all rescuers (those shore-based as well as the entry
237 personnel) shall be clearly briefed on the action plan, including any specific tasks and objectives,
238 hazards, and alternative plans. The water entry rescuer shall never be attached to a rope/life line
239 without the benefit of a quick-release mechanism. The rescuer should attempt to take a PFD to
240 the victim, if possible.
- 241 • **HELO:** At times, the use of a helicopter may be the only reasonable method of reaching the
242 victim. Helicopter operations over water are considered extremely risky. The Incident
243 Commander shall consult with the helicopter flight crew to determine the risk/benefit of an air
244 operation. The Incident Commander and helicopter agency shall mutually agree that a helicopter
245 will be used for a swift water rescue operation. The helicopter pilot makes the final
246 determination regarding how the helicopter will be used during the operations.

247
248



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249 **GUIDELINES – POST RESCUE OPERATIONS**

250 As soon as the victim is brought to safety, an assessment shall be completed by Advanced Life Support
251 personnel. This assessment shall be conducted a safe distance from the moving water.

252
253 Personnel involved in the rescue operations shall proceed to the rehab area for decontamination,
254 medical assessment, nutrition, hydration, and/or environmental temperature control.

255
256 Before leaving the scene, water samples shall be taken for any water *entered* by rescuers. Water sample
257 kits are carried on the Water rescue units and the Safety 1 car. The sample shall be placed in a sterile
258 container and remain at stable temperature (do not attempt to warm or cool the sample). The sample
259 shall be sent to the Little Patuxent Waste Water Reclamation laboratory for analysis. In the event the
260 reclamation plant technician is not able to process the sample, it may be sent to certified American
261 Conference of Governmental Industrial Hygienists laboratory for testing.

262
263 Upon conclusion of personnel rehab, the following shall be accomplished:

- 264 • Conduct an equipment check;
- 265 • Decontaminate personnel and equipment as needed;
- 266 • Inventory and inspect all equipment for damage;
- 267 • Document rope and equipment use as required;
- 268 • Secure the scene as needed;
- 269 • Consider debriefing, after action reporting, and post incident critique.

270

271 **WATER RESCUE TRAINING AND DOCUMENTATION**

272 Special Operations team personnel shall be expected to perform at the technician level and shall be
273 trained and certified accordingly.

274

275 Annual performance evaluations (re-certifications) for Swift Water Rescue and High Angle and Technical
276 Rope Rescue Technicians shall be conducted on all Special Operations personnel and equipment,
277 pursuant to the guidelines of NFPA 1670, Standard on Operations and Training for Technical Rescue
278 Incidents.

279

280 Master documentation for all initial training, certifications and annual re-certification shall be maintained
281 by the Bureau of Education and Training.

282

283 Documentation regarding training and certification for each member shall be available for inspection by
284 that member and his/her authorized representatives.

285

286 **REFERENCES**

- 287 • Department General Order 300.02, Accountability
- 288 • Department General Order 300.04, Mayday
- 289 • Department General Order 300.07, Incident Command System
- 290 • Department General Order 300.11, Rapid Intervention Crew



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- 291 • Department General Order 330.04, Technical Rescue Incidents
- 292 • All applicable local, state and federal laws.
- 293 • National Fire Protection Agency (NFPA) 1521, Standards for Fire Department Safety Officer
- 294 • National Fire Protection Agency (NFPA) 1670, Standard on Operations and Training for Technical
- 295 Rescue Incidents

SUMMARY OF DOCUMENT CHANGES

297 Changed name of document to **Surface Water and Flood Rescue Incidents from Swift Water Rescue**
298 **Incidents**

299 Added Incident Command water and flooding definitions

300 Added Better description of Operations and Technician Personal Protective Equipment

301 Added - The sample shall be sent to the Little Patuxent Waste Water Reclamation laboratory for analysis.
302 In the event the reclamation plant technician is not able to process the sample, it may be sent to certified
303 American Conference of Governmental Industrial Hygienists laboratory for testing.

FORMS/ATTACHMENTS

- 305 • Special Operations Swift Water/Flood Tactical Operations Guide TOG. The TOG may be referenced
306 at T:\Fire\Special Operations\Spec Ops Forms and TOGS.

APPROVED

311 Deputy Chief John S. Butler
312 Operations Command
313
314



**Swift Water
&
Flood
Tactical Operations Guide**



**Howard County
Fire & Rescue**
Special Operations
410-313-7692

Swift Water/ Flood Checklist

Incident # _____

Incident Information:

Date:

Time:

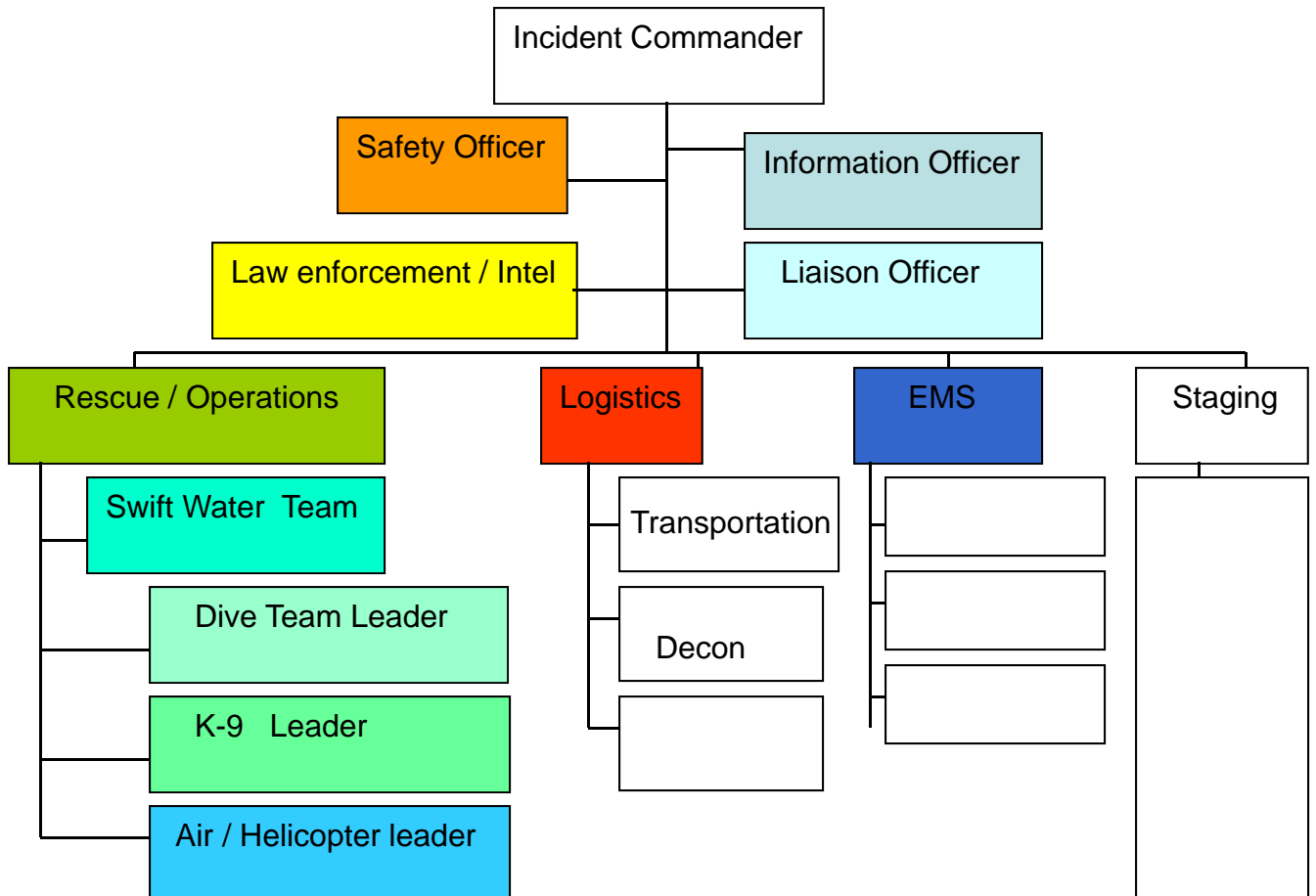
Incident Commander:

Location:

Weather Update:

Rescue / Operations:

Support agencies and mutual aid units:



Swift Water / Flood Operations Checklist

Phase 1 : Size Up

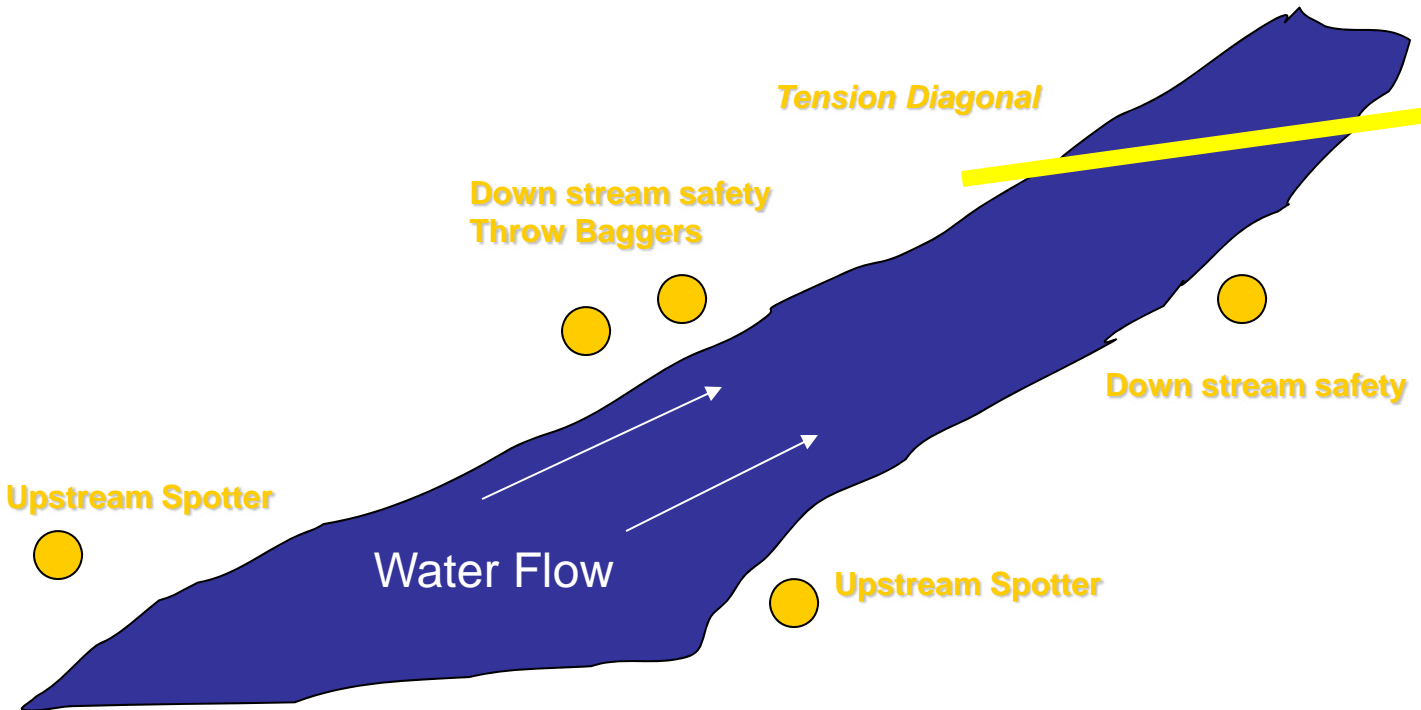
	Yes	No	Comments
Establish unified command & staging			
Primary assessment: remove non trained And non equipped persons from danger			Make general area safe : Traffic and crowd control
Secure witness and start interview to determine # of victims and point last seen			Broadcast victim ID to responders
Identify immediate hazards: Water level rising Surface loads (Debris) Hydraulics Hypothermia Hazmat			Consider the need for evacuation in Flood situations
Secondary Assessment: Down stream hasty search Assess need for additional resources Determine time of victim submersion Rescue mode or recovery			Dive team ?

Phase II : Pre- Rescue Operations

Response Priority:	Yes	No	Comments
1. Self rescue 2. Fellow rescuers 3. Victim			
Make rescue area safe: Establish control zones Assign safety officer Assure team response on opposite bank PPE within 10 feet of water <b style="color: #C00000;">NO STRUCTURAL FF GEAR ! Assign upstream spotters Assign down stream safety			
Formulate the incident action plan based on low to high risk options: <i>Talk-Reach-Throw-Row-Go-Tow-Helicopter</i>			Determine Plans B and C

Swift Water / Flood Operations

Phase III : Rescue Operations



	Yes	No	Comments
Establish a swift water rescue technician spotter for each tech that enters the water			
Upstream spotters should have the following equipment: 1 radio, 1 whistle and a signal horn and a pair of binoculars			
Plan for victim removal from waters edge To transport unit			
Establish Rehab area for responders			
Plan for the treatment and transport of each member who enters the water			
NO BODY GETS PAST THE LAST DOWN STREAM SAFETY!			

Swift Water / Flood Operations

Phase IV : Termination

	Yes	No	Comments
Conduct a PAR			
Decontamination of members who entered the water			
Ho. Co. OEM (200 units) notified in flooding situations			
Collect water sample for contamination assessment			
Consider notification to WSSC, Md DNR where appropriate			
Consider the need for C.I.S.M.			
Establish documentation for all Lost and damaged equipment			

Site Drawing :

Utilize the box below to sketch the scene

