



# Advisory Circular

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**Subject:** Airport Water Rescue Plans and  
Equipment

**Date:** Draft

**AC No:** 150/5210-13D

**Initiated By:** AAS-300

**Change:**

1    1    **Purpose.**

2            This Advisory Circular (AC) provides guidance to assist airport operators in preparing  
3            for water rescue operations.

4    2    **Cancellation.**

5            This AC cancels AC 150/5210-13C, *Water Rescue Plans, Facilities, and Equipment*,  
6            dated September 29, 2010.

7    3    **Applicability.**

8            The Federal Aviation Administration (FAA) recommends the standards and guidelines in  
9            this AC to establish uniform application for Airport Water Rescue Plans and Equipment.  
10           This AC does not constitute a regulation, is not mandatory and is not legally binding in its  
11           own right. It will not be relied upon as a separate basis by the FAA for affirmative  
12           enforcement action or other administrative penalty. Conformity with this AC is voluntary,  
13           and nonconformity will not affect rights and obligations under existing statutes and  
14           regulations; however, the following applies:

- 15           1. The standards and guidelines contained in this AC are practices the FAA  
16           recommends to establish an acceptable level of safety and performance for Aircraft  
17           Rescue and Fire Fighting (ARFF) operations.
- 18           2. This AC provides one, but not the only, acceptable means of meeting the  
19           requirements of 14 Code of Federal Regulations (CFR) Part 139, *Certification of*  
20           *Airports*.
- 21           3. Use of these standards and guidelines are mandatory for projects funded under  
22           Federal grant assistance programs, including the Airport Improvement Program  
23           (AIP). See Grant Assurance #34 *Policies, Standards, and Specifications*, and PFC  
24           Assurance No. 9, *Standards and Specifications*.
- 25           4. This AC is mandatory, as required by regulation, for projects funded by the  
26           Passenger Facility Charge (PFC) program. See Passenger Facility Charge (PFC)  
27           Assurance #9.

28 4 **Reference Material.**

29 The following documents provide related guidance.

- 30 1. FAA ACs
- 31 a. AC 150/5200-12, *First Responders' Responsibility for Protecting Evidence at*  
32 *the Scene of an Aircraft Accident/Incident*
- 33 b. AC 150/5200-31, *Airport Emergency Plan (AEP)*
- 34 c. AC 150/5210-7, *Aircraft Fire and Rescue Communications*
- 35 2. National Fire Protection Agency (NFPA)
- 36 a. NFPA 1006, *Standard for Technical Rescue Personnel Professional*  
37 *Qualifications*, 2021 Edition
- 38 b. NFPA 1580, *Standard for Emergency Responder Occupational Health and*  
39 *Wellness*, 2025 Edition
- 40 c. NFPA 1910, *Standard for the Inspection, Maintenance, Refurbishment, Testing,*  
41 *and Retirement of In-Service Emergency Vehicles and Marine Firefighting*  
42 *Vessels*, 2024 Edition
- 43 d. NFPA 1925, *Standard on Marine Fire-Fighting Vessels*, 2009 Edition
- 44 e. NFPA 2500, *Standard for Operations and Training for Technical Search and*  
45 *Rescue Incidents and Life Safety Rope and Equipment for Emergency Services*,  
46 2022 edition
- 47 3. National Transportation Safety Board (NTSB)
- 48 a. Report SS-85/02, *Air Carrier Over Water Emergency Equipment and*  
49 *Procedures*
- 50 4. Transportation Research Board/Airport Cooperative Research Program  
51 (TRB/ACRP)
- 52 a. TRB/ACRP, *Guidance for Identifying and Mitigating Approach Lighting*  
53 *System Hazards*
- 54 5. U. S. COAST GUARD Commandant's Instruction (COMDTINST)
- 55 a. COMDTINST M16130.2, *Coast Guard Addendum (CGADD) to the United*  
56 *States National Search and Rescue Supplement (NSS)*

57 5 **Principal Changes.**

- 58 1. Updated references to NFPA documents.
- 59 2. Updated Appendix A, Sample Aircraft Water Rescue Plan.
- 60 3. Updated Appendix B, Sample Water Rescue Checklist.
- 61 4. Included reference to TRB/ACRP, *Guidance for Identifying and Mitigating*  
62 *Approach Lighting System Hazards*.

63 6 **Where to Find this AC.**  
64 You can view a list of all ACs at  
65 [http://www.faa.gov/regulations\\_policies/advisory\\_circulars/](http://www.faa.gov/regulations_policies/advisory_circulars/). You can view the Federal  
66 Aviation Regulations at [http://www.faa.gov/regulations\\_policies/faa\\_regulations/](http://www.faa.gov/regulations_policies/faa_regulations/).

67 7 **Feedback on this AC.**  
68 If you have suggestions for improving this AC, you may use the [Advisory Circular](#)  
69 [Feedback](#) form at the end of this AC.

Trish Hiatt  
70 Acting Director of Airport Safety and Standards

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122 **1. INTRODUCTION.**

123 This AC provides guidance on the special considerations airport operators will consider  
124 for review when preparing for water rescue operations in the vicinity of an airport.  
125 These include preplanning issues, such as delineation of responsibilities, the planning  
126 process, training, and equipment.

127 **2. BACKGROUND.**

128 **2.1 Input from Other Agencies.**

129 This AC incorporates lessons learned from National Transportation Safety Board  
130 (NTSB) investigations. It also contains updated sources of information about water  
131 rescue training from the United States Coast Guard (USCG) and related training offered  
132 by some Maritime Universities.

133 In addition, the Coast Guard has issued COMDTINST M16130.2, Coast Guard  
134 Addendum (CGADD) to the United States National Search and Rescue Supplement  
135 (NSS), which is a supplement to the *International Aeronautical and Maritime Search*  
136 *and Rescue Manual (IAMSAR)*. This addendum established policy, guidelines,  
137 procedures, and general information for Coast Guard use in Search and Rescue (SAR)  
138 operations.

139 **2.1.1. Domestic Operations.**

140 Aircraft involved in domestic operations carry “slide raft/flotation devices” as well as  
141 life vests (inflatable or seat cushion type) for each passenger. Some larger air carrier  
142 aircraft carry large inflatable rafts, as well.

143 **2.1.2. Overseas Operations.**

144 Aircraft operating for extended over-water operations are required to carry a life  
145 preserver equipped with an approved visual locator light for each occupant of the  
146 airplane. Each aircraft is also equipped with enough life rafts of a rated capacity and  
147 buoyancy to accommodate the occupants. The required life rafts and preservers are  
148 required to be easily accessible in case of a "ditching" event.

149 **2.1.3. Approach and Departure.**

150 Accidents around airport environments generally take place during the approach to or  
151 departure from the airport. A 1985 in-house study by the NTSB entitled Report SS-  
152 85/02, *Air Carrier Over Water Emergency Equipment and Procedures*, found “Current  
153 procedures and equipment are designed on the assumption that air carrier water contact  
154 accidents are primarily ditching, a water accident characterized by at least some  
155 preparation time and relatively little aircraft damage. In fact, a review of air carrier  
156 water contact accidents between 1959 and 1984 shows that such accidents are typically  
157 inadvertent, with no preparation time, substantial aircraft damage and a high chance of  
158 occupant injury. Typically, these accidents do not occur on [extended over water  
159 flight]...but close to an airport, during approach and departure...” In addition, it should

160 be noted that many aircraft accidents have occurred between the outer marker and the  
161 physical runway end. These areas should be a primary focus in water rescue planning.

## 162 2.2 **Water Rescue Preparedness.**

163 Airport officials at airports certified under 14 CFR Part 139 responsible for emergency  
164 preparedness develop an airport emergency plan that includes a section on water rescue  
165 (as detailed in AC 150/5200-31, *Airport Emergency Plan*). See Appendix A and B for a  
166 sample Aircraft Water Rescue Plan and Checklist. The plan specifies any specialized  
167 rescue and training equipment needed to provide safe water rescue services as  
168 determined by the airport's proximity to bodies of water. In addition, the plan addresses  
169 the unique character or "type" of water around the airport, as it may be a critical factor  
170 in emergency planning. For example, in Hawaii, coral reefs close to the shoreline  
171 demand unique approaches to water rescue, whereas more northern airports need to  
172 address cold water and frozen bodies of water.

173 Many airports rely on mutual aid partners for resources and personnel related to  
174 response to an aircraft accident/incident in the water. These mutual aid partners also  
175 have a significant role in coordination and planning as well as the execution of water  
176 rescue drills and exercises.

## 177 3. **SPECIAL CONSIDERATIONS.**

### 178 3.1 **Major Survival Factors.**

179 Survivors of aircraft accidents in water may be subjected to post impact fires, fuel/vapor  
180 inhalation and ingestion, hypothermia, further injury from debris, attack by marine life,  
181 and drowning.

182 Air crash survivability in a water environment depends on certain factors:

- 183 1. The deceleration forces do not exceed the known tolerable limits of the human body.
- 184 2. The restraint system-seatbelts, seat structure, and seat anchorage points remain  
185 intact.
- 186 3. The occupied areas remain relatively intact to prevent ejection and to provide living  
187 space for the occupants.
- 188 4. The rapid response of properly equipped and trained rescue personnel.
- 189 5. Availability of a sufficient number of rescue craft.

190 If any of the above elements are absent, the likelihood of a successful rescue is  
191 significantly diminished.

### 192 3.2 **Water Temperature.**

193 Survivors of water crashes must depend more on rescue personnel than survivors of  
194 similar incidents on dry land because of exposure related issues. Not only will the  
195 passengers be unprepared to be in water, but they will also experience increased body-  
196 cooling rates due to several factors including water temperature and evaporating fuel. It  
197 is advised that rescue personnel assume all survivors are experiencing hypothermia until  
198 confirmed otherwise by medical professionals.

- 199 3.3 **Duration of Exposure.**  
200 The Water Rescue Plan must also address the proper care and treatment of survivors  
201 following rescue operations. It should include procedures for prompt decontamination,  
202 specifically the removal of fuel or other contaminants from survivors, particularly from  
203 the eyes, as soon as possible. Rescue craft should be equipped with an adequate  
204 number of blankets proportional to their expected rescue capacity. These blankets  
205 should be used to wrap each survivor during transport to medical facilities. Wool or  
206 other natural fiber blankets are preferred, while synthetic materials such as Polartec,  
207 fleece, Mylar (space blankets), or similar fabrics should only be used when natural fiber  
208 options are unavailable.
- 209 3.4 **Evacuation.**  
210 Water rescue planning must account for problems transporting survivors from the water  
211 to casualty collection areas, e.g., pre-determined triage, decontamination, and  
212 transportation zones, including helicopter landing zones.
- 213 3.5 **Nature of Injuries.**  
214 Passengers in aircraft accidents may have sustained a variety of injuries prior to being  
215 rescued from the water. First responders should use careful consideration in the  
216 handling and transportation of these victims, who have not yet been assessed or triaged.
- 217 3.6 **Specific Hazards and Preparation for Treatment.**  
218 Certain bodies of water in proximity to an airport may present unique environmental or  
219 operational hazards that can adversely affect the safety of both survivors and rescue  
220 personnel. These hazards may include dangerous marine life, natural features such as low-  
221 head dams, strong currents, marshlands, coral formations and other debris such as  
222 timber/trees and trash. The Water Rescue Plan should identify these hazards and establish  
223 specific precautions and operational procedures to be followed by rescue craft operators  
224 and personnel. The plan should also include guidance for mitigating associated risks and  
225 for providing appropriate medical treatment to victims who may be affected by these  
226 environmental conditions.
- 227 3.7 **Seasonal Procedures.**  
228 Certain elements of the Water Rescue Plan may change significantly based on seasonal  
229 and climatic changes. Increased congestion of waterways during recreational boating  
230 seasons or loss of available resources such as Harbor Tour Boats “off season” may  
231 change procedures or require modification of plans. Bodies of water subject to freezing  
232 may require alternative procedures, training, and/or equipment. Water channels subject  
233 to freezing may require monitoring and notification of agencies responsible for ice  
234 breaking.
- 235 3.8 **Approach Lighting Systems.**  
236 Runway end lighting systems present a significant structural impact hazard as well as an  
237 acute electrical hazard, requiring the need to preplan for the approach of emergency  
238 vehicles, rescue vessels and de-energizing the electrical system. (Reference  
239 TRB/ACRP, *Guidance for Identifying and Mitigating Approach Lighting System*  
240 *Hazards*).

241 **4. WATER RESCUE RESPONSIBILITIES.**

242 **4.1 Certified Airports.**

243 The plan required by this section must contain provisions in accordance with 14 CFR  
244 Part 139.325, to the extent practicable, for the rescue of aircraft accident victims from  
245 significant bodies of water or marsh lands adjacent to the airport that are crossed by the  
246 approach and departure flight paths of air carriers.

247 **4.1.1. Significant Body of Water.**

248 A body of water or marsh land is significant if the area exceeds one- quarter square mile  
249 (0.6 sq km) and cannot be traversed by conventional land rescue vehicles. Some airports  
250 have large detention ponds on the airport property. In many cases, these ponds are in  
251 proximity to the runway and of sufficient size and depth to create a significant hazard to  
252 an aircraft which may enter the pond. The Water Rescue Plan should include all  
253 significant bodies of water and marsh lands located within at least 2 statute miles (3.2  
254 km) of the end of an airport air carrier runway which cannot be traversed by  
255 conventional land rescue vehicles, including detention ponds. Detention ponds on the  
256 airport property which may be less than one quarter square mile (0.6 sq km) and that  
257 cannot be traversed by conventional land rescue vehicles, may require special rescue  
258 equipment, e.g., extendable ladders.

259 **4.1.2. Identification of Responders.**

260 The AEP includes the name, address, and telephone number of each water rescue unit,  
261 service, or government agency, e.g., Coast Guard, Harbor Patrol or specially trained  
262 marine law enforcement and fire department units responsible for conducting water  
263 rescue operations. The USCG Auxiliary may provide valuable services in specific roles  
264 such as maintaining a security zone around an accident site. Auxiliary personnel should  
265 have specific training for their role in the plan. A designated flag for the auxiliary boat  
266 identifying them as an authorized responder helps distinguish them from pleasure craft.

267 **4.2 Primary Response Agency Other Than Airport.**

268 Even when the airport operator is not the primary water rescue response agency, it has  
269 responsibility for planning and implementing the airport emergency plan and ensuring  
270 that the appropriate rescue agency/agencies are formally notified of the possibility of an  
271 aircraft accident where there is a significant body of water.

272 **4.2.1. Mutual Aid.**

273 Because of jurisdictional or logistical reasons, an airport operator develops a water  
274 rescue plan that consists of a written mutual aid agreement identifying an entity other  
275 than the airport to act as the primary response agency. Such agreements are typically  
276 signed with the local fire/rescue department, Coast Guard, Marine Police, Harbor  
277 Patrol, or National Guard. A water rescue plan may also contain additional signed  
278 agreements with private entities, such as tug operators, ferries, marina facilities, medical  
279 helicopter services, crane operators, and construction or recovery crews.

280 4.2.2. Involvement of Emergency Response Agencies in Exercising Water Rescue Plans  
281 At certificated airports, where another entity assumes the role of the primary response  
282 agency, the airport operator specifies the responsibilities and duties, and they are  
283 codified in a written mutual aid agreement. In accordance with Part 139, the airport's  
284 emergency plan (including responders identified and involved in exercises) must be  
285 thoroughly reviewed periodically, e.g., an annual plan review/tabletop and a full-scale  
286 exercise every 3 years, or sooner as required. The airport operator should also  
287 periodically evaluate the airport water rescue component as part of either the annual  
288 plan review/tabletop or triennial full-scale emergency exercise. The role of mutual aid  
289 responders, whether they are the primary response agency or a support agency, is  
290 critical to the success of a water rescue plan. It should be noted that each of these  
291 agencies has their own primary mission. Fulfilling that primary mission may commit or  
292 relocate assets and personnel to events other than the aircraft accident/incident. Airport  
293 emergency planners should factor in these contingencies when developing a water  
294 rescue plan.

## 295 5. WATER RESCUE PLANNING.

### 296 5.1 Response Assignments.

297 The Water Rescue Plan should clearly identify the equipment, personnel, and specific  
298 actions to be provided by each participating agency, and it should designate the agency  
299 responsible for assuming the primary response role. When the airport operator is not  
300 designated as the primary response agency, this arrangement should be documented in a  
301 mutual aid agreement and reflected in the AEP. The plan should also provide a written  
302 description of the resources, support, and coordination to be furnished to the primary  
303 response agency.

### 304 5.2 Support Inventory.

305 The Water Rescue Plan should include an inventory of what services, equipment  
306 capabilities, and facilities each agency provides, and locations and plans for mobilizing  
307 personnel and equipment. The airport operator should maintain an inventory list and  
308 update it regularly to ensure that the necessary equipment and personnel are available.  
309 To the extent practicable, the plan should provide for the use of rescue vessels with  
310 enough combined capacity to accommodate the maximum number of persons that can  
311 be carried on board the largest air carrier aircraft in the Index group required under 14  
312 CFR Part 139.315.

### 313 5.3 Incident Command.

314 The Incident Command System (ICS) should be established in accordance with AC  
315 150/5200-31, *Airport Emergency Plan*, and be clearly defined within the airport's  
316 Water Rescue Plan. The ICS structure should be implemented and maintained  
317 throughout the duration of the incident. The airport's Fire Department should assign a  
318 qualified representative to the Command Post. When the airport serves as the lead  
319 agency for an aircraft accident occurring in water, the ARFF representative assumes the  
320 role of Incident Commander (IC). When another agency serves as the lead, the ARFF

321 representative reports to the IC to provide technical expertise and maintain liaison with  
322 airport management and operations.

#### 323 5.4 **Additional or Unplanned Assistance.**

324 The plan should recognize that recreational boaters who see the accident want to rescue  
325 passengers in the water. In addition, once news of the accident spreads, other members  
326 of the public might want to assist. Because they are not likely to be familiar with  
327 aircraft or experienced in emergency response, they may inadvertently increase the  
328 danger to survivors in the water and to themselves. It is very important to establish  
329 effective control procedures to prevent their involvement in the rescue. When possible,  
330 request the Coast Guard to issue a Notice to Mariners to keep boaters out of the area  
331 once the ICS has been established. Channel 16 or other VHF emergency frequencies  
332 may be used by the USCG and ICS. **Note:** It can take up to a week to publish a Local  
333 Notice to Mariners (LNM).

334 Commercial vessels such as water shuttles, ferries and tugboats are resources that may  
335 be very helpful during water rescue operations. These vessel operators should be  
336 considered as a resource and included in the water rescue planning. If these entities  
337 agree to assist, there should also be a formal agreement signed and placed in the AEP.  
338 This way they have an expectation of what to do, as well as familiarization with the  
339 plan.

#### 340 5.5 **Survivor Recovery and Support Operations.**

341 The plan should set forth practices and procedures for rescuing survivors from floating  
342 and/or submerged sections of fuselage. The airport operator or primary response agency  
343 should pre-establish suitable casualty collection areas. The selection of docking and  
344 landing areas should be made, taking into consideration the following:

- 345 1. Routes through the airport proper might not provide the most direct access to  
346 hospitals with facilities appropriate for treating survivors.
- 347 2. The ability to secure the site from intrusion by the public and the media.
- 348 3. Have adequate space to accommodate triage, fuel decontamination, ambulance  
349 staging, ambulance loading, ambulance turn around, etc.
- 350 4. Have dock heights compatible with rescue craft.
- 351 5. Resources for addressing the incident may include floating docks and gangways, not  
352 ladders.
- 353 6. Be illuminated for night operations or include portable lighting equipment as part of  
354 the plan.
- 355 7. Have sufficient draft to accommodate rescue craft being routed to this location at all  
356 tides.
- 357 8. Have an adequate turning basin to support docking and undocking of the rescue  
358 craft being routed to this location.
- 359 9. Be located in an area that remains navigational navigable during all weather  
360 conditions.

- 361 10. Have a water supply to support decontamination operations, e.g., hydrants.
- 362 **5.6 Other Considerations.**
- 363 In addition to the items outlined above, the plan should address the following issues:
- 364 1. Notification system for all agencies involved.
- 365 2. Jurisdictional authority or authorities for each required emergency service, e.g., Fire
- 366 – Rescue, Law Enforcement, rescue and Dive Teams.
- 367 3. Rescuer Accountability System: Accountability system to keep track of rescuers in
- 368 the hot zone, e.g., divers or rescue swimmers in the water, rescuers making entry to
- 369 floating fuselage, etc. Establishing an National Incident Management System
- 370 (NIMS) compliant accountability system utilizing accountability tags or another
- 371 method per the Incident Command System. This should be harmonized with all
- 372 response agencies which maintain constant awareness of the status and location of
- 373 all personnel working at the site.
- 374 4. Memorandums of understanding (MOUs) or Letters of Agreement (LOAs) with
- 375 responding agencies with a role in the plan.
- 376 5. Response times. Response times for both airport and mutual aid responders.
- 377 6. Hazardous material, and/or other special considerations.
- 378 7. Personnel recall.
- 379 8. Security.
- 380 9. Traffic control.
- 381 10. Medical, rescue, firefighting services.
- 382 11. Fueling of boats.
- 383 12. An inventory of specialized services and equipment.
- 384 13. Training. Including training as required by Part 139.303C to address water rescue.
- 385 14. Drills. A full-scale water rescue exercise should be conducted to ensure the
- 386 functionality of the plan.
- 387 15. Triage.
- 388 16. Services for uninjured passengers.
- 389 17. Airline support.
- 390 18. Fatality management planning.
- 391 19. The resumption of normal operations.
- 392 20. Family assistance planning.
- 393 21. Environmental response, e.g., hazardous material (HAZMAT), pollution control,
- 394 clean up.

- 395 22. Establish evidence collection areas (primary and alternate) on shore that have  
396 capabilities for the management of evidence such as aircraft parts, personal affects,  
397 crash scene debris, etc. Suitability requirements should include the following:
- 398 a. Ability to support heavy equipment.
  - 399 b. Ability to secure the area from intrusion by the public and media.
  - 400 c. Have space to accommodate the required functions, e.g., fuel decontamination,  
401 crane operations, truck loading, truck turnaround, etc.
  - 402 d. Have sufficient draft and free board for barges.
  - 403 e. Be lit for night operations or include a lighting plan if not so equipped.
  - 404 f. Ensure law enforcement (local, state, federal), have needed access.

## 405 6. TRAINING.

### 406 6.1 Designated Search and Rescue Personnel.

407 At airports that plan to provide water rescue, the rescue personnel are generally selected  
408 from among trained aircraft rescue and firefighting and/or airport police personnel.  
409 Rescue personnel should receive additional training in rescue boat handling in the  
410 specific rescue craft used at the airport. Competent, qualified, experienced personnel  
411 must provide training. In some states, a license to operate the vessel may be required.  
412 Airports ensure all applicable training and licensing is accomplished for designated  
413 responders. Medical screening or questionnaires may help determine the  
414 appropriateness of certain assignments for personnel. People susceptible to sea sickness  
415 should not be assigned as a rescue boat operator or as a crew member. Training should  
416 include hazard recognition, the proper use of personal protective equipment and  
417 techniques for removing victims from the water and into various types of rescue craft as  
418 identified in the plan. Examples of personal protective equipment includes: helmet,  
419 floatation devices, thermal protection clothing, and blood borne pathogen protection.

### 420 6.2 Topics for Training.

421 It is incumbent upon the airport operator to ensure that its rescue personnel (whether from  
422 the airport or mutual aid partners) expected to engage in water rescue activities receive  
423 training with airport and water rescue planning, techniques, rescue boat handling skills,  
424 and victim handling procedures. Victim handling procedures should include handling  
425 the victim while they are in the water, methods used to move the victim into various  
426 types of rescue crafts, and procedures for treatment once aboard the rescue craft. The  
427 airport operator should ensure that all airport rescue personnel that may engage in any  
428 rescue swimming activities should be trained in rescue swimming. It is up to the airport  
429 to work with their mutual aid responders to determine familiarity and train in water  
430 rescue. (**Note:** *Because of the potential danger involved, rescue swimmers should only  
431 be deployed as a last resort, e.g., row, throw and go (RTG) by a competently trained  
432 person.*) Reference NFPA 2500, *Standard for Operations and Training for Technical  
433 Search and Rescue Incidents and Life Safety Rope and Equipment for Emergency  
434 Services*, 2022 edition, and NFPA 1006, *Standard for Technical Rescuer Professional*

435 *Qualifications*, 2021 edition, for recommended detailed operational level requirements.

436 **Note:** *The NFPA does not certify people based on qualifications.*

437 This training should address the topics found in paragraphs 6.2.1 through 6.2.3.

438 6.2.1. Boat Training.

- 439 1. Vessel maneuvering, e.g., operating a rescue boat in a crash environment
- 440 2. Construction and characteristics of rescue boats
- 441 3. Propulsion systems
- 442 4. Vessel dynamics
- 443 5. Search patterns
- 444 6. Using specialized equipment during searches, e.g., spotlights, vessel-mounted
- 445 Forward Looking Infra-Red (FLIR) cameras, handheld Thermal Imaging Cameras
- 446 (TICs)
- 447 7. Rescue planning
- 448 8. Ocean/waterway/current dynamics
- 449 9. Limited visibility
- 450 10. Recovery of people in water/extrication skills, provide emergency medical care, first
- 451 aid
- 452 11. Towing procedures
- 453 12. Rescue swimmer deployment
- 454 13. Identify types and quantities of lifesaving equipment carried and their use
- 455 14. Use of communication devices

456 6.2.2. Rescue Swimming.

- 457 1. Safety Fundamentals
  - 458 a. Deployment considerations; tethering and tending of swimmers
  - 459 b. Confined space and submerged space prohibitions
  - 460 c. Environmental hazards/aircraft hazards
- 461 2. Rescue Swimmer Equipment
  - 462 a. Thermal protection and floatation aids
  - 463 b. Mask, snorkel, and fins
  - 464 c. Tethering systems
  - 465 d. Signaling/identification aids
  - 466 e. Water rescue helmet
- 467 3. Communications

- 468 a. Hand, whistle, and line signals
- 469 4. Immersion Hypothermia and Cold-Water Drowning
- 470 a. Recognition and treatment
- 471 5. Ocean Dynamics and Operating Near Aircraft
- 472 a. Waves, swells, and currents
- 473 b. Fuel and HAZMAT contaminants in the water
- 474 c. Dangers including debris field, partially submerged objects
- 475 6. Physiological Aspects of Rescue Swimming
- 476 a. Respiration and circulation
- 477 b. Alterations in breathing patterns
- 478 c. Muscle cramps
- 479 d. Importance of conditioning
- 480 7. Swimmer Operations
- 481 a. Dressing and deployment skills
- 482 b. Swim training
- 483 c. Victim handling
- 484 d. Recovery of conscious, unconscious, and panicking survivors
- 485 e. Line system
- 486 f. Multiple victims

487 6.2.3. Rescue Divers – Underwater Operations.

488 Any structure, such as an automobile or aircraft that enters the water, can float for a  
489 period of time. If the aircraft is intact, it may float for a period of time, usually until  
490 water enters through an opening in the aircraft. The possibility of surviving inside of a  
491 submerged fuselage in an air pocket is possible, but the initial rescue focus must be  
492 survivors on the surface of the water.

493 **7. INITIAL AND RECURRENT TRAINING.**

494 The airport operator or primary response agency should develop a training Standard  
495 Operating Guideline (SOG) which outlines the initial and recurrent training program for  
496 water rescue. This SOG should include the topics from paragraph 6.2, *Topics for*  
497 *Training*, as they apply to the specific needs of the airport's water rescue applications.  
498 Airport Operators conduct frequent marine-related exercises including use of the rescue  
499 craft and other equipment during different weather conditions and seasons. At least half  
500 of the exercises should occur at night or during seasonal inclement weather and/or  
501 winter conditions. A method for evaluation and demonstration of proficiencies achieved  
502 following initial and recurrent training should be part of the training program. This

503 training and recurrent training should demonstrate the proficiency for all ARFF  
504 responders per 14 CFR Part 139.319 i (2).

505 **8. SOURCES FOR WATER RESCUE INFORMATION AND TRAINING.**

506 A partial list of sources, both public and private, for information and training related to  
507 various aspects of water rescue is given below. This list is not represented to be  
508 complete, nor does it indicate the only sources for such training. It is provided only as  
509 the starting point for information for emergency preparedness officials and does not  
510 represent an endorsement by the FAA. The information was current on the date of  
511 publication of this advisory circular.

512 **1. Lake Superior College**

513 Fire Technology and Administration Courses 2101 Trinity Road  
514 Duluth, MN 55811  
515 Ph: 800-432-2884 (toll free) Ph: 218-733-7600  
516 Website: <https://www.lsc.edu/>

517 **2. University of Missouri–Columbia**

518 Fire and Rescue Training Institute  
519 2800 Maguire Blvd, Suite C1  
520 Columbia, MO 65211  
521 Ph: 800-869-3476 (toll free) Ph: 573-882-4735  
522 Fax: 573- 882-0678  
523 E-mail: [frti@missouri.edu](mailto:frti@missouri.edu)  
524 Website: <https://extension.missouri.edu/programs/mu-fire-and-rescue-training-institute>

525 **3. United States Power Squadron**

526 1504 Blue Ridge Road PO Box 30423  
527 Raleigh, NC 27622  
528 Ph: 888-367-8777 (toll free) Ph: 1-919-821-0281  
529 Website: <https://www.usps.org>

530 **4. United States Coast Guard**

531 **National Maritime Center**  
532 100 Forbes Dr.  
533 Martinsburg, WV 25404-0001  
534 Ph: 1 (888) 427-5662  
535 Website: [https://www.dco.uscg.mil/national\\_maritime\\_center/](https://www.dco.uscg.mil/national_maritime_center/)

536 **5. National Association of State Boating Law Administrators (NASBLA)**

537 1020 Monarch St., Suite 200  
538 Lexington, KY 40513  
539 Ph: 859-225-9487  
540 E-mail: [info@nasbla.org](mailto:info@nasbla.org) (for general information)  
541 Website: <https://www.nasbla.org>

542 NASBLA Approved State Boating Safety Courses Link: <https://www.boat-ed.com/>

543 NASBLA Approved Boating Safety Courses Link:  
544 <https://www.nasbla.net/courselisting.php>

545 **6. American Red Cross**

546 Contact your local Red Cross office and ask for the Health and Safety Services  
547 Office for a full listing of swimming, water rescue, and boating courses.

548 Website: <https://redcross.org>

549 **Note:** See section 11 for USCG Coordination Centers.

550 **9. COMMUNICATIONS.**

551 The planning and implementation of proper and effective communications for water  
552 rescue operations is complex. In an accident on an airport, it is the airport certificate  
553 holder's responsibility during air carrier operations to provide rescue capability in  
554 accordance with Part 139. However, in an aircraft accident in the water another  
555 governmental agency might provide incident command. In such cases the airport  
556 operator must quickly communicate to the primary response agency that an accident has  
557 taken place and dispatch airport representatives to the Incident Command Post.

558 **9.1 Notification of Airport Rescue Personnel.**

559 Airport rescue personnel in the aircraft rescue and firefighting station or water rescue  
560 substation should be notified of an aircraft in the water. Cross-trained personnel located  
561 in the terminal building or elsewhere on the airport should be notified by standard  
562 communication procedures, e.g., pager, radio, or cell phone.

563 **9.2 Notification of Mutual Aid Partners.**

564 A reliable voice and electronic communications system should be available between the  
565 airport and other official agencies or parties specified in the mutual aid agreement. The  
566 system may make use of telephone and/or radio technology. A mobile or waterborne  
567 command post, if available, may enhance communications capabilities at the scene. An  
568 interoperable communications system is required when multiple agencies are operating  
569 at a single incident.

570 **9.2.1.** The USCG has reserved Marine very high frequency-frequency modulation (VHF-FM)  
571 channel 16 frequency (156.800 MHz) as an International Distress, Safety and Calling  
572 channel. For all ships required to carry a radio, the USCG, and other coast stations  
573 maintain a listening watch on this channel. If an airport operator has one or more  
574 vessels, it should ensure these vessels monitor this frequency. The Coast Guard Liaison

575 and Maritime Safety Information Broadcasts announced on Channel 16 are read in full  
576 on VHF-FM channel 22 A (157.100 MHz). The USCG may assign emergency  
577 operations communications related to the water search and rescue event as well as  
578 security related functions to Channel 22 A or other channels at their discretion.  
579 Operating frequencies should be pre-determined with the local Coast Guard sector or  
580 district for all response entities within the USCG area of responsibility.

581 VHF-FM Channel 13, frequency (156.650) is an Inter-ship Navigation Safety (bridge-  
582 to-bridge) channel. Ships over 66 feet (20m) in length maintain a listening watch on  
583 this channel in US waters. This frequency provides rapid communications to public  
584 safety vessels, harbor ferries, water shuttles, tugboats, etc. Many marine radios have  
585 options for monitoring more than one frequency. Channel 16 and Channel 13 should  
586 always be monitored in a port or harbor where commercial vessels over 66 feet (20m)  
587 are operating.

588 9.2.2. The emergency plan should address the establishment and location of a command center  
589 to direct rescue operations, as well as the method(s) of communication to be used.

### 590 9.3 **Command and Control During the Rescue Operation.**

591 If other agencies, particularly the Coast Guard or Harbor Police, perform rescue  
592 operations, the airport operator needs to establish communications on a marine radio  
593 frequency with the primary response agency. This may require the airport operator to  
594 purchase marine radios or install marine radio channels in airport radios. In addition, a  
595 Command Post should be established in accordance with NIMS Incident command and  
596 the AEP. The primary response agency and the airport operator should ensure that it is  
597 able to communicate with the designated command post.

### 598 9.4 **Coordination.**

599 Rescue operations between rescue personnel on the water and on land must be  
600 coordinated to ensure that survivors are brought to the designated areas on shore for  
601 triage, decontamination, and surface/air transportation. Accountability and tracking of  
602 rescue personnel and survivors is an essential component of the water rescue plan  
603 coordination. Rescue personnel should be monitored through a NIMS compliant  
604 accountability system, utilizing accountability tags or another method that is  
605 harmonized with all response agencies. A system to maintain accountability of  
606 survivors should also be established, which is adopted and used by all agencies involved  
607 in the event.

## 608 **10. RESCUE VEHICLES AND EQUIPMENT.**

### 609 10.1 **Types of Vehicles.**

610 10.1.1. Vehicles used in conducting water rescue operations must be appropriate for the  
611 particular water environment involved (water, marsh land, tundra, swamp, etc.).  
612 Collectively including mutual aid arrangements, they should have enough capacity to  
613 accommodate the maximum number of passengers carried by the largest type of aircraft  
614 serving the airport to the extent practicable. To ensure the appropriate selection of  
615 water rescue vehicles for the specific airport, agencies responsible for acquiring these

616 vehicles must consider seasonal weather variations and daily tide conditions (e.g., ice,  
617 wave height, surf conditions, water temperature, hours of daylight, prevailing winds,  
618 etc.).

619 10.1.2. Normally, various types of boats are the primary water rescue vehicles. Other vehicles  
620 may include helicopters, air cushion vehicles, and shallow draft “air boats.” All rescue  
621 crafts may have advantages and disadvantages. For example, water jet drive boats  
622 operate well in shallow water; but tend to intake floating debris. Amphibious and track  
623 vehicles may have some utility in swamp rescue operations. Reference NFPA 1910,  
624 *Standard for the Inspection, Maintenance, Refurbishment, Testing, and Retirement of*  
625 *In-Service Emergency Vehicles and Marine Firefighting Vessels*, for guidance in  
626 selecting vessels.

627 10.1.3. All boats need to meet USCG manufacturing standards.

## 628 10.2 Use of Vehicles and Equipment.

### 629 10.2.1. Conventional Boats.

630 These vessels are useful for transporting rescue personnel and equipment, deploying  
631 flotation equipment, picking up survivors, firefighting, securing the scene,  
632 communications, etc. Some boats are designed for and may be used in the same manner  
633 as rapid intervention vehicles in conventional aircraft rescue and firefighting responses.

### 634 10.2.2. Amphibious Firefighting Vehicles.

635 An amphibious firefighting vehicle capable of 25 to 30 mph (40-48 kph) on land and 8  
636 mph (13 kph) in water can be useful for rough terrain, steep slopes, flooded areas, as  
637 well as for permanent, significant bodies of water.

### 638 10.2.3. Rescue Boats.

639 These fiberglass or aluminum-hulled boats may have inboard or outboard engines  
640 capable of speeds up to 60 mph (95 kph). Some of the boats are designed to allow for  
641 the removal of a section of the hull (freeboard) to provide easy access into and out of  
642 the water. The boats can vary in length from 17 to over 40 feet (5–12 m). Depending  
643 upon the size of the vessel, enclosed or at least sheltered accommodations may be  
644 available to protect survivors from the environment. It is important that the boats have  
645 easy access around most of the topsides to allow rescue personnel to deploy raft  
646 canisters or to assist survivors out of the water. Rescue boats should have 2 engines so  
647 if one becomes inoperable, the other becomes the back up. All conventionally powered  
648 boats should have propellor shrouds (prop guards) to protect victims or rescuers in the  
649 water and protect the prop from debris encountered in the water.

### 650 10.2.4. Rafts/Flotation Platforms.

651 These platforms are simply large, inflatable rafts with cargo netting draped over the side.  
652 They provide a highly buoyant means of keeping 10 to 45 people afloat until rescue  
653 craft arrive. The platforms should be provided with appropriate fittings to allow safe  
654 towing to the shore. Care should be taken in attempting to tow aviation-type rafts  
655 because of their design. Rescue personnel need to practice assisting victims onto the

656 platform because victims may be unable to board the platforms unassisted.  
657 Consideration should be given to deploying sufficient inflatable platforms. Inflatable  
658 rescue platforms require maintenance and inspection by a USCG approved inspection  
659 station.

#### 660 10.2.5. Inflatable Boats.

661 Normally, these boats are very shallow draft vessels. They may be a rigid hull or a true  
662 inflatable boat with a diesel/gasoline powered propeller and/or water jet propulsion  
663 capable of traveling 30 to 50 mph (48–80 kph). Boats of 22 to 28 feet (6.6–8.5 m) will  
664 accommodate approximately 15 people. Inflatable boats provide the best ratio of vessel  
665 weight to passenger capacity. They can be swamped and still support survivors.  
666 Consideration should be given to deploying sufficient inflatable boats. If inflatable  
667 boats are specified for water rescue use, consideration should be to those designed with  
668 separate compartments in the inflatable hull. Sharp or jagged metal on aircraft wreckage  
669 provides a hazard to inflatable vessels. All conventionally powered boats should have  
670 propellor shrouds (prop guards) to protect victims or rescuers in the water and protect  
671 the prop from debris encountered in the water.

#### 672 10.2.6. Shallow Draft “Air Boat.”

673 These boats can be 7 to 8 feet wide (2.1–2.4 m) and 13 to 20 feet long (3.8–6 m) and are  
674 propelled by aircraft or auto engines driving aircraft-like propellers. Larger models can  
675 carry approximately 2,200 pounds (1,000 kg) of people and/or water rescue and medical  
676 equipment. They can operate at speeds up to 50 mph (80 kph) in extremely shallow  
677 water, tidal flats, marshes, and snow. Shallow draft airboats, however, sink if swamped.  
678 Also, these boats cannot go in reverse and can never be fully stopped. Air boats are  
679 extremely noisy and clear communications may pose an issue.

#### 680 10.2.7. Air Cushion Vehicles or “Hovercraft.”

681 Rescue personnel can use hovercraft in the same manner as conventional boats. In  
682 addition, the hovercraft is an amphibious vehicle that can be used on ground, water,  
683 mud, ice and any kind of service /and or floating obstacle. Larger models can carry 18  
684 survivors. These vessels usually have a higher response speed in calm waters. They are  
685 especially useful in very shallow water as well as on mud flats. Smaller model  
686 hovercrafts are less capable of traversing transitions in terrain and show significant  
687 reduction in speed operating into the wind or with moderate to severe chop. However,  
688 they can cause jet fuel vapors, which can cause an explosive mixture.

#### 689 10.2.8. Helicopters.

690 Helicopters, and fixed wing aircraft in some cases, are most useful for transporting and  
691 deploying rescue personnel and equipment because they are faster than any surface  
692 vehicle. They are particularly useful for shuttling additional personnel and equipment to  
693 the scene, providing weather conditions are acceptable. Helicopters can also provide  
694 spotlights useful in searches and can assist with communications and secondary  
695 command post activities. Helicopters with infrared capability can be particularly useful  
696 for night activities. A video downlink capability which may serve as a decision support  
697 tool for incident command is useful. However, helicopters can disorient and frighten

698 survivors in the water because of rotor noise and downwash, which can cause water  
699 spray, and debris to become airborne. Helicopter operations in narrow rivers may be  
700 constrained by obstructions, trees, bridges, power lines, etc. If helicopters are to be used  
701 in water rescue operations, functions they can safely perform should be determined early  
702 in the planning process. Planners should not rely solely on helicopters for rescuing  
703 survivors. Most helicopters used by the Coast Guard, Police and Fire departments have  
704 limited seating capacity, generally between four and eleven. Airports should determine  
705 the capacity of the helicopters during planning sessions and training, and address crew  
706 and staffing numbers.

#### 707 10.2.9. Other Equipment that Should Be Available.

708 Area maps and navigation charts, bailing buckets, water pumps, blankets, bull horns,  
709 communications equipment, emergency lights, flares, forcible entry tools, marine night  
710 vision binoculars, life rafts (with oars or paddles), medical kits, navigational equipment,  
711 medical equipment, portable 500-watt or greater floodlights, rescue nets,  
712 stretchers/litters, floating rescue rope throwing bags, personal flotation devices, life  
713 rings and boat anchors should be available and readily accessible.

714 **Note:** When developing the plan, use usefulness, availability, and estimated times for  
715 the arrival of various watercraft and equipment.

### 716 10.3 **Specific Applications.**

#### 717 10.3.1. Oceans or Large Lakes.

718 Coastal airport operators or their primary response agencies should consider boats to be  
719 their primary response vehicles. Helicopters that can be dispatched by the airport or  
720 secured from other agencies for the transportation of rescue personnel and/or flotation  
721 equipment are also of prime importance. Such airport operators should consider fast  
722 rescue boats capable of carrying and deploying the appropriate amount of flotation gear  
723 such as inflatable rescue platforms. The plan should include a vessel with some  
724 firefighting capability. Additional required marine assets may include larger vessels  
725 capable of taking survivors on board and providing other support such as medical,  
726 communications, etc.

#### 727 10.3.2. Inland Waters.

728 Boats, inflatable, and/or air cushion vehicles may be the primary response vehicle at  
729 airports located adjacent to rivers and small lakes. Boats of appropriate size and  
730 capability should be available for immediate response. Airport operators should  
731 consider relatively small, fast boat(s) capable of carrying the appropriate amount of  
732 flotation gear, plus having some firefighting capability and a larger boat capable of  
733 taking survivors on board and providing other support such as medical,  
734 communications, etc.

#### 735 10.3.3. Wetlands/Swamps.

736 Consider hard-to-reach areas (marsh lands, coral reefs, etc.), as well as the types of  
737 equipment that will be used in the plan. Water rescue operations in swamps may call  
738 for shallow draft boats, "air boats," air cushion vehicles, helicopters; various tracked

739 vehicles, and “high flotation” and/or amphibious vehicles. The swamp should be  
740 traversed or examined by air prior to selecting the appropriate rescue equipment.

741 10.3.4. Swift Water.

742 Rescue operations occurring in areas with rapidly moving water conditions normally  
743 require the use of special watercraft. This watercraft can include inflatable and/or rigid  
744 hulled boats. They should have the ability to be transported quickly and be launched  
745 with the minimum amount of effort, preferably without access to a boat ramp. Before  
746 conducting operations in swift water, a risk assessment of the moving water conditions  
747 should be made as to the hazards to the victims and the rescuers. In certain instances,  
748 the use of a helicopter may provide an alternative rescue option. Swift water rescue  
749 presents significant unique challenges and hazards to rescuers and victims in the water.  
750 Specific swift water training should be provided in addition to the training described in  
751 Section 6.

752 10.3.5. Areas Subject to Freezing.

753 Bodies of water at some airports may require additional planning more than others due  
754 to frozen bodies of water during extreme winter conditions. The airport operator’s water  
755 rescue plan should consider local Memorandum of Understanding/Memorandum of  
756 Agreement (MOU/MOA) resources with access to suitable rescue equipment.

757 **11. UNITED STATES COAST GUARD (USCG) RESCUE COORDINATION**  
758 **CENTERS**

- 759 1. USCG Rescue Coordination centers can be found at this website:  
760 [https://www.dco.uscg.mil/Our-Organization/Assistant-Commandant-for-Response-](https://www.dco.uscg.mil/Our-Organization/Assistant-Commandant-for-Response-Policy-CG-5R/Office-of-Incident-Management-Preparedness-CG-5RI/US-Coast-Guard-Office-of-Search-and-Rescue-CG-SAR/RCC-Numbers/)  
761 [Policy-CG-5R/Office-of-Incident-Management-Preparedness-CG-5RI/US-Coast-](https://www.dco.uscg.mil/Our-Organization/Assistant-Commandant-for-Response-Policy-CG-5R/Office-of-Incident-Management-Preparedness-CG-5RI/US-Coast-Guard-Office-of-Search-and-Rescue-CG-SAR/RCC-Numbers/)  
762 [Guard-Office-of-Search-and-Rescue-CG-SAR/RCC-Numbers/.](https://www.dco.uscg.mil/Our-Organization/Assistant-Commandant-for-Response-Policy-CG-5R/Office-of-Incident-Management-Preparedness-CG-5RI/US-Coast-Guard-Office-of-Search-and-Rescue-CG-SAR/RCC-Numbers/)

763

**APPENDIX A. SAMPLE AIRCRAFT WATER RESCUE PLAN**764 **A.1 Introduction.**

765 List Airport name, description, ARFF Index (see 14 CFR Part 139.315), location, and  
766 operator. Identify by name, type, size, location, and proximity of water hazards with  
767 distance and direction from airport. Include information that this plan complies with the  
768 AC or an approved alternate means. The alternate means will be clearly listed in the  
769 plan. Include information that this plan complies with the AC or an approved alternate  
770 means. The alternate means will be clearly listed in the plan.

771 **A.2 Purpose.**

772 To promptly deploy water rescue equipment and crews in support of an aircraft incident,  
773 accident, or mutual aid assistance in or near bodies of water.

774 **A.3 Response.**

775 Initial responders' action follows the Water Rescue Plan as listed in the AEP. Reference  
776 specific section and title of the AEP as well as Departmental Standard Operating  
777 Procedures (SOP) or Standard Operating Guidelines (SOG).

- 778 1. Describe the procedure for notifying airport personnel of an aircraft  
779 accident/incident occurring in a nearby body of water. First notification is generally  
780 from the Air Traffic Control Tower (ATCT) to the Airport fire or emergency  
781 Dispatch.
- 782 2. Describe the notification procedures for both initial alert and communication with  
783 mutual aids.

784 **A.4 Support Inventory.**

785 Identification of facilities, vessels, equipment, services, specialized teams, staffing, and  
786 support that may be available to participate in a water rescue effort.

787 **A.5 Response Agencies.**

788 Identify the agencies to be contacted per the airport operator's Water Rescue Plan.  
789 Indicate who is responsible for notification as well as updates. Identify communications  
790 methods used, e.g., Computer Aided Dispatch, automated call systems, manual calling,  
791 etc. Reference the appropriate appendix in the Water Rescue Plan which includes the  
792 primary and secondary contact numbers for each agency. Describe and record the  
793 frequency the list is updated, verified, and by whom, based on the requirements of the  
794 AEP. Attach copies of MOUs or MOAs to the plan.

795 **A.6 Staffing.**796 A.6.1 Internal Airport Organization.

797 List the individual's title and responsibilities, e.g., Water Rescue Captain, Boat  
798 Operations Officer, etc. Reference Organizational Chart in the Appendix.

799 A.6.2 Composition.

800 Include title for the individual member(s) in charge of water rescue equipment  
801 inventory, maintenance, inspection, and replacement (further referenced in this sample  
802 document as "Water Rescue Commander"). Additional responsibilities include  
803 updating plans and agreements as well as tracking any changes in water rescue response  
804 areas, e.g., frozen channels, changes in navigational aids or response resources. Include  
805 a list of the members of the water rescue team that fulfill the required annual training  
806 and certification. Identify the members by category, e.g., rescue swimmer, swift water  
807 rescue, boat operations, ground support, recovery divers, etc. Indicate any special  
808 qualification or requirement for each category or title.

809 A.6.3 Incident Command System (ICS).

810 Include ICS flow chart(s) based on Memorandums of Understanding (MOUs), or Mutual  
811 Aid Agreements (MAAs) and existing local Incident Command protocols.

812 **A.7 Operations.**813 A.7.1 Training.

814 Identify each team's training requirement and frequency, e.g., First Responder  
815 certification, Boating Safety Course, water lifesaving course. Reference the Department  
816 Standard Operating Procedures for training and demonstration of proficiencies. Initial  
817 and recurrent training should include the items identified in paragraph 6.2, Topics for  
818 Training. Airport staff must have training in accordance with 14 CFR Part 139.303(c).

819 A.7.2 Water Rescue Equipment.

820 List airport water rescue equipment maintained in inventory required in water rescue  
821 operations. Include storage location, quantities, sizes, type, inspection, maintenance,  
822 testing and replacement cycles. Indicate any personal equipment used, e.g., diving  
823 gear, should be approved for use by the Water Rescue Commander.

824 A.7.3 Boat Inspection Procedures.

825 Indicate the frequency each boat/rescue craft and stored equipment should be inspected  
826 (daily, weekly, and monthly) and the individual checks, and documentation method  
827 required. Include communication checks and the list of radio frequencies to be verified.

828 A.7.4 Vehicle Based Water Rescue Equipment Inspection Procedures.

829 Indicate the frequency that each piece of water rescue equipment, stored on vehicles  
830 should be inspected (daily, weekly, and monthly) and the individual checks, and  
831 documentation method required.

832 A.7.5 Victim Treatment.

833 The primary objective of the water rescue team is the rapid removal of victims from the  
834 water and transportation to the shoreline for proper treatment. Emergency treatment at  
835 the scene is accomplished within the constraints of the incident situation. Identify the  
836 equipment required to be on scene, e.g., blankets, oxygen, equipment bags, long boards,  
837 C-spine collars, etc.

838 **A.8 Procedures.**

- 839 1. As in any emergency response, the Incident Command System should be followed.
- 840 2. Upon arrival on the scene, the Incident Commander (IC) establishes Command and  
841 complete an initial assessment of the situation to determine the action to be taken,  
842 and the response required.
- 843 3. The IC identifies the location of the Command Post, either waterborne or land based,  
844 and the Water Rescue Operations Chief operates on the water as needed until the  
845 incident is concluded.
- 846 4. The IC working with available Command Staff should establish the Incident Action  
847 Plan (IAP) as soon as possible and communicate it to all personnel through  
848 appropriate Section Chiefs involved in the incident.
- 849 5. Survival Reference Section: Include the typical or seasonal conditions of the water  
850 hazards within the water rescue plans response areas:
  - 851 a. Water temperatures by season, with reference or link to Hypothermia survival  
852 tables.
  - 853 b. Wildlife hazards to survivors and rescuers in the water or along shorelines.
  - 854 c. Significant currents, speed of water, waterfalls, dams, tributaries.
  - 855 d. Local hazards, i.e., high voltage on instrument landing system (ILS) Piers,  
856 entanglement hazards, diving hazards, hazards to navigation.
  - 857 e. Tide heights of extreme high and low cycles. Reference to tide chart locations.

858 **A.9 Rescue/Recovery Aspects.**

859 Investigations into the causes of aircraft accidents are handled by the National  
860 Transportation Safety Board (NTSB), Federal Aviation Administration (FAA) and/or  
861 the Federal Bureau of Investigation (FBI). They generally do not have the resources for  
862 recovering large amounts of aircraft wreckage and usually rely on the aircraft owners to  
863 hire a recovery team for these purposes.

864 A.9.1 Priorities.

865 The first priority for any responders should be to quickly locate and rescue survivors.  
866 The recovery of deceased victims and wreckage should never interfere with the job of  
867 rescuing survivors.

868 A.9.2 Legal Authority.

869 Indicate any legal requirements such as local Medical Examiner, state or Federal  
870 authority, foreign government, military restricted areas.

871 A.9.3 Recovery Equipment/Storage.

872 Indicate the number and location of body bags required for the size of the emergency as  
873 well as the location site for the deceased victims. The Law Enforcement Officer (LEO)  
874 Section Chief coordinates security and preserves the dignity and respect of human  
875 remains per local regulations/ordinance.

876 A.9.4 Wreckage and Evidence.

877 Follow AC 150/5200-12, First Responders Responsibility in Protecting Evidence at the  
878 Scene of an Aircraft Accident/Incident.

879 **A.10 Post Response.**

- 880 1. A Critical Incident Stress Debriefing (CISD) is required and scheduled following  
881 any water rescue incident, especially in the case of loss of life or significant injuries.  
882 Reference the appropriate CISD Department Standard Operating Procedure (SOP)  
883 and NFPA 1580, *Standard for Emergency Responder Occupational Health and*  
884 *Wellness.*
- 885 2. All equipment should be cleaned, dried and inspected after each use and then placed  
886 back into service.
- 887 3. Infectious control procedures should be observed. Reference the Department's  
888 Infectious Control Policy.
- 889 4. As soon as possible after responders have been relieved, they should provide full  
890 accounting of the incident identifying actions, observations, concerns, and  
891 recommendations. This information is helpful during incident critique for the  
892 updating and revision of the Water Rescue Plan in AEP, MOUs, MAAs and during  
893 the investigation phase.
- 894 5. Schedule after action critique with internal and external response agencies within 7  
895 days, or as soon as practicable, but not later than 30 days from the incident.
- 896 6. Update water rescue plans and procedures with lessons learned during incident  
897 critique as soon as possible.

898

**APPENDIX B. SAMPLE AIRCRAFT WATER RESCUE CHECKLIST**

ITEM	DESCRIPTION	SPECIAL NOTES	REMARKS
1.	Describe body/bodies of water involved.	Type, approximate size, average depth, seasonal weather, climatic conditions (including ice, water temperatures, wave height, hours of daylight, prevailing winds). Include map(s), nautical charts with concentric rings indicating distance from airport. Identify runway designations and outer markers.	
2.	List name, address, and telephone numbers of each water rescue participant along with their qualification(s).	Should be verified and updated as specified in the Water Rescue Plan.	
3.	Notification of jurisdictional authority(s) (IC)*, based on location of incident.		
4.	Hazardous materials*, pollution containment.		
5.	Personnel recall*	Identify systems, manual or auto recall. Test auto systems at least annually, verify / update contact Information.	
6.	Security*		
7.	Traffic and access control*		
8.	Emergency Medical Services (EMS)*		
9.	ARFF*		
10.	Triage*		
11	Firefighting*		
11.	Dive teams, rescue, or recovery		
12.	Rescue Swimmers		
13.	Services, facilities for uninjured*		

ITEM	DESCRIPTION	SPECIAL NOTES	REMARKS
14.	Airline support*		
15.	Air Support	Helicopter or fixed wing for search and rescue / communications plan for air support.	
16.	Removal of deceased*	Mass fatality plan / coordination with Coroner's Office/Forensic Teams.	
17.	Family assistance plan*, Red Cross / Airline / Airport Plan		
18.	Resumption of normal services*,		
19.	Define incident command system, National Incident Management Systems (NIMS) Compliance		
20.	Describe incident response, recovery actions, procedures of ARFF, LEO, Airport Operations, EMS, public information (PIO).		
21.	Mutual aid agreements between the airport, each response agency, and private companies; list each and describe responsibilities, equipment, etc. Identify the agency in command based on location or other factors.		
22.	Air Traffic Control Tower (ATCT) role description	Consider Temporary Flight Restrictions (TFR) and sUAS use.	
23.	Sanitation services for extended operations		
24.	Drinking water, Rehab		
25.	CISD, Critical Incident Stress Debriefing Plan		
26.	Ropes, barricades, barrier tape for land side support, marine safety zone for incident location, search areas		

ITEM	DESCRIPTION	SPECIAL NOTES	REMARKS
27.	Portable lighting, landside for docking, landing facilities / ambulance loading, etc. Agencies / vessels equipped with scene lighting.	Hot refuel locations for helicopter operations.	
28.	Decontaminate equipment		
29.	Portable address system (PAS)		
30.	Communication equipment (cell phones, 2-way radios, etc.)		
31.	Communication protocols		
32.	Communication procedures		
33.	Mobile telephone banks		
34.	Marine band capability		
35.	Specific triage, passenger transfer site(s) by location		
36.	Agreements with commercial boat fleets / ferries / water shuttles		
37.	Specific fuel decontamination site		
38.	Location, plans for mobilizing personnel, equipment, staging areas		
39.	Describe watercraft by type, capacity, staffing, and equipment carried. Seasonal availability and organization.		
40.	Nautical charts identifying response areas or zones. Limitations for rescue craft based on draft or special requirements.		
41.	Rescue boat facilities & locations. Limitations / weather, tide, access.	Indicate wet or dry storage docks.	
42.	Establish specific docking/landing areas onshore. Considerations for this location, flexible float heights, ambulance staging, and road access.		
43.	Training for watercraft operation, handling; rescue swimming, tabletop, triennial exercises when applicable.	Minimum standards, frequencies, organizations, or agencies providing training.	

ITEM	DESCRIPTION	SPECIAL NOTES	REMARKS
44.	Annual Review of Plan / Tabletop Exercise. Recommend within 24 months of approval of the Water Rescue Plan into the AEP and every 48 ccm months thereafter.	Full scale water rescue exercises are necessary.	

899 \* Policy  
900 + Procedures

901 **APPENDIX C. LIST OF ACRONYMS**

902	AC	Advisory Circular
903	AEP	Airport Emergency Plan
904	AIP	Airport Improvement Program)
905	ARFF	Aircraft Rescue Fire Fighting
906	ATCT	Air Traffic Control Tower
907	CFR	Code of Federal Regulations
908	CGADD	Coast Guard Addendum
909	CISD	Critical Incident Stress De-briefing
910	COMDTINST	Commandant's Instruction
911	EMS	Emergency Medical Services
912	FAA	Federal Aviation Administration
913	FBI	Federal Bureau of Investigation
914	FLIR	Forward Looking Infrared
915	FM	Frequency Modulation
916	HAZMAT	Hazardous Material
917	IAMSAR	International Aeronautical and Maritime Search and Rescue Manual
918	IAP	Incident Action Plan
919	IC	Incident Command
920	ICS	Incident Command System
921	ILS	Instrument Landing System
922	LEO	Law Enforcement Officer
923	LNM	Local Notice to Mariners
924	LOA	Letter of Agreement
925	MAA	Mutual Aid Agreement
926	MOA	Memorandum of Agreement
927	MOU	Memorandum of Understanding
928	NASBLA	National Association of State Boating Administrators
929	NFPA	National Fire Protection Association
930	NIMS	National Incident Management System
931	NTSB	National Transportation Safety Board
932	PAS	Portable Address System

933	PFC	Passenger Facility Charge
934	PIO	Public Information Office
935	RTG	Row, Throw, and Go
936	SAR	Search and Rescue
937	SOG	Standard Operating Guideline
938	SOP	Standard Operating Procedure
939	TIC	Thermal Imaging Camera
940	TRB/ACRP	Transportation Research Board/Airport Cooperative Research Program
941	USCG	United States Coast Guard
942	VHF	Very High Frequency

### Advisory Circular Feedback

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If you find an error in this AC, have recommendations for improving it, or have suggestions for new items/subjects to be added, you may let us know by (1) mailing this form to Manager, Airport Safety Policy Branch, Federal Aviation Administration ATTN: AAS-310, 800 Independence Avenue SW, Washington DC 20591 or (2) faxing it to the attention of the Office of Airport Safety and Standards at (202) 267-8821.

Subject: AC 150/5210-13D

Date: \_\_\_\_\_

*Please check all appropriate line items:*

- An error (procedural or typographical) has been noted in paragraph \_\_\_\_\_ on page \_\_\_\_.
- Recommend paragraph \_\_\_\_\_ on page \_\_\_\_\_ be changed as follows:

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- In a future change to this AC, please cover the following subject:  
*(Briefly describe what you want added.)*

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- Other comments:

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- I would like to discuss the above. Please contact me at (phone number, email address).

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Submitted by: \_\_\_\_\_

Date: \_\_\_\_\_