3-2611 OBJECTIVE. This section provides guidance for conducting Title 14 of the Code of Federal Regulations (14 CFR) part 121 emergency evacuation and ditching demonstrations.

3-2612 SAFETY ASSURANCE SYSTEM (SAS). Use the following Data Collection Tools (DCT):

- Element 2.3.1 (OP) Appropriate Operational Equipment.
- Element 5.1.1 (OP) Training of Flight Attendants.
- Element 5.2.1 (OP) Crewmembers Duties/Cabin Procedures.

3-2613 BACKGROUND.

A. Definitions.

1) Dark of Night. A level of illumination approximating the natural level of light that occurs 90 minutes after official sunset under clear sky conditions.

2) Demonstration Project Coordinator. The individual assigned by the certificate holder/applicant to organize and conduct the demonstration. This person also serves as the official contact with the Federal Aviation Administration (FAA) for the purposes of the demonstration.

3) Ditching Demonstration. The ditching demonstration allows the FAA to evaluate the operator’s ability to simulate the preparation of passengers, airplane, and ditching equipment for a planned water landing within the allotted timeframe. Passengers are not required unless the operator’s procedures require able-bodied helpers to assist crewmembers by locating, removing, and launching liferafts.

   a) Full. This demonstration is required when an operator intends to use a new aircraft make and model or a make and model of land aircraft for extended overwater operations. This demonstration is an evaluation of the crew’s preparation of passengers, crewmember procedures and emergency training, and their knowledge of the applicable ditching equipment. For this demonstration, all slide rafts and liferafts must be inflated.

   b) Partial. For a type and model aircraft in which a simulated full ditching has been successful and the operator is requesting to use the aircraft in extended overwater operations. The partial demonstration is an evaluation of the crew’s emergency training and procedures and their knowledge of the applicable ditching equipment. For this demonstration, the FAA team leader (TL) will select one slide raft or liferaft to be inflated.
4) **Emergency Evacuation Demonstration.**

a) Full. Demonstrates the evacuation capability of a type and model of an airplane to be used in a passenger-carrying operation with a seating capacity of more than 44 passengers. The full-scale demonstration validates the effectiveness of crew training and procedures to evacuate a full capacity of passengers and crew within 90 seconds.

b) Partial. Demonstrates the effectiveness of an operator’s crewmember emergency training and evacuation procedures. This demonstration requires that 50 percent of the required emergency exits be opened and slides deployed (if applicable) and ready for use within 15 seconds.

5) **Extended Overwater Operations.** Flights conducted at a horizontal distance of more than 50 nautical miles (NM) from the nearest shoreline.

6) **FAA Team Leader (TL).** The aviation safety inspector (ASI) who heads the FAA team evaluating the emergency evacuation or ditching demonstration is the TL. In the case of an existing certificate holder, it is the principal operations inspector (POI) and/or cabin safety inspector (CSI). For a new entrant applicant, it is the certification project manager (CPM) or the CPM can delegate this responsibility to a CSI (if applicable).

7) **Launch a Liferaft.**

a) Phase I—Fifteen-Minute Cockpit/Cabin Preparation for Ditching. Timing starts with the ditching notification from the PIC to the F/A. The FAA TL signals the end of Phase I after 15 minutes.

b) Phase II—Demonstrate Launching Liferaft.

1. Remove a liferaft from storage and position it at the launch location on the aircraft (then pause).

2. Company personnel will move the liferaft to the position on the ground, designated stand, or ramp before inflation.

   NOTE: The FAA TL communicates to the CPM the end of Phase II of the ditching demonstration.

3. The FAA TL communicates to the CPM to begin Phase III once the liferaft is positioned with crewmembers and/or able-bodied helpers.

c) Phase III—Demonstrate Water Survival Procedures. The demonstration resumes with the boarding of survivors in life vests. The FAA TL presents survival questions in accordance with training (Q and A).
8) Launch a Slide Raft.

a) Phase I—Fifteen-Minute Cockpit/Cabin Preparation for Ditching. Timing starts with the ditching notification from the PIC to the F/A. The FAA TL signals the end of Phase I after 15 minutes.

b) Phase II—Demonstrate Launching Slide Raft.

NOTE: Frequently, this demonstration is conducted immediately following the emergency evacuation demonstration using one of the inflated slides.

1. Position the inflated slide raft outside the aircraft on the ground, designated stand, or ramp.

   NOTE: The FAA TL communicates to the CPM that this signals the end of Phase II of the demonstration.

2. Company personnel will ensure that the aircraft-appropriate survival kit is attached (if necessary).

3. The FAA TL communicates to the CPM to begin Phase III with slide raft, survival kit, and crewmembers in position.

c) Phase III—Demonstrate Water Survival Procedures. The demonstration resumes with the boarding of survivors in life vests. The FAA TL presents survival questions in accordance with training (Q and A).

9) Operator/Company. For the purposes of this section, operator/company indicates a certificate holder or a new entrant carrier (applicant).

10) Passengers. Participants in the demonstrations who represent aircraft passengers. These individuals may not be crewmembers, mechanics, or training personnel.

11) Seating Configuration. The number of passenger seats authorized for use by the manufacturer type certificate (TC) or production data, Supplemental Type Certificate (STC), or other FAA-approved data. Adding or removing seats is a major alteration and requires appropriate FAA approval.

B. Type Certification Demonstrations. An airplane manufacturer must conduct an emergency evacuation demonstration in accordance with 14 CFR part 25, § 25.803 to obtain type certification. This demonstration is the responsibility of the applicable FAA Aircraft Certification Office (ACO) and tests the following:

- The basic airplane design and its ability to be evacuated safely,
- The airplane’s emergency evacuation systems (EES), and
- The manufacturer’s FAA-approved emergency evacuation procedures.
C. Part 121 Demonstrations.

1) Part 121 operators must conduct an emergency evacuation demonstration for any aircraft having a seating configuration of more than 44 passenger seats.

2) A ditching demonstration must be conducted for any land aircraft intended for extended overwater operations.

3) The need to conduct full-scale or partial demonstrations depends primarily upon whether a full-scale demonstration has been conducted previously by another part 121 operator or a manufacturer.

4) The demonstrations test the following:
   - The operator’s emergency training program,
   - Crewmember competency,
   - The operator’s emergency evacuation and ditching procedures, and
   - The reliability and capability of the emergency equipment on the aircraft.

D. Manufacturer Demonstrations.

1) Aircraft manufacturers must conduct emergency evacuation demonstrations to obtain type certification. These demonstrations are the responsibility of the FAA ACO.

2) The demonstrations test the following:
   - The basic aircraft design,
   - The efficiency with which passengers can be safely evacuated from the aircraft,
   - The aircraft’s EES, and
   - The manufacturer’s FAA-approved emergency evacuation procedures.

E. Regulatory Requirements. Part 121, § 121.291; § 25.803; and part 121 appendix D specify four types of evacuation demonstrations:

   - Full-scale emergency evacuation,
   - Partial emergency evacuation,
   - Full-scale ditching, and
   - Partial ditching.

F. Maximum Demonstrated Seating Capacities. To determine whether full-scale or partial emergency evacuation demonstrations are required, the principal inspectors (PI) and CSI assigned to the certificate holder/applicant must know the maximum number of passenger seats for specific air transport category aircraft used in part 121 operations. This information, along with data regarding interior configurations and other relevant factors, can be obtained through the following offices:
The Transport Aircraft Seattle Aircraft Evaluation Group (AEG) for large aircraft,
The Small Aircraft AEG for small aircraft, or
The Rotorcraft and Powered Lift AEG for helicopters.

3-2614 FULL-SCALE EMERGENCY EVACUATION DEMONSTRATION. A full-scale emergency evacuation demonstration simulates an aborted takeoff. The manufacturer and/or the operator must show that the aircraft, emergency equipment, and emergency procedures allow the evacuation of the aircraft at full seating capacity, including crewmembers, in 90 seconds or less.

A. No Previous Demonstration. An operator must conduct a full-scale emergency evacuation demonstration when there has been no previous demonstration of the aircraft type and model by another part 121 operator or by a manufacturer during type certification.

B. Proposed Increase in Seating Capacity. A demonstration is required if an operator proposes to increase seating capacity for a type and model of aircraft beyond that which has been previously demonstrated.

C. Section 25.803 Circumstances. Under certain circumstances described in § 25.803, the ACO may designate installed passenger seats to be unoccupied for a manufacturer’s demonstration. However, the number of passengers a part 121 operator may carry is the total number of passengers occupying seats during a full-scale evacuation demonstration and not the number of installed passenger seats.

3-2615 PARTIAL EMERGENCY EVACUATION DEMONSTRATION. A partial emergency evacuation demonstration is required when an operator intends to add a type and model of aircraft to their operation that has successfully passed a full-scale evacuation.

A. Requirements. After the initiation signal, the aircraft’s emergency evacuation equipment and 50 percent of the required emergency exits and slides must be ready for use in 15 seconds or less. No passengers are used in a partial demonstration.

B. Circumstances. A partial demonstration is required for a certificate holder in the following circumstances:

1) Number:
   - A change in seating configuration requires the addition of a F/A; or
   - Changes in seating capacity result in fewer or the same number of F/As, but the F/A duties and procedures change significantly.

2) Location. If an operator changes the F/A seating assignment(s), the POI and/or CSI must determine if the F/A’s duties and responsibilities change significantly. A significant change requires a partial demonstration.

3) Duties and Procedures. If an operator makes significant changes in emergency evacuation duties or procedures, the POI and/or CSI may determine a partial demonstration to be necessary. If the changes are minor or can be addressed in the operator’s training program, a demonstration may not be required.
4) Determining “Significant Change.” The POI and/or CSI must consider the following in determining the degree and significance of changes:

- F/A knowledge and experience,
- The operator’s training program, and
- The increase in complexity of F/A duties in terms of additional exits, seats, or briefing responsibilities.

C. Coordination. The need for a demonstration must be coordinated with the appropriate ACO and the Executive Director of Flight Standards Service (AFX-1) when the operator changes the following:

- The number, location, and/or type of emergency exits, or
- The type of opening mechanisms on the emergency exits.

3-2616 FULL-SCALE DITCHING DEMONSTRATION. The ditching demonstration simulates a planned water landing and evaluates the operator’s ability to prepare passengers, aircraft, and ditching equipment.

A. Evaluations. During the demonstration, the following areas are evaluated:

- The emergency training program,
- Ditching procedures,
- Crewmember competency, and
- Equipment reliability and capability.

B. Section 121.291(d) Requirements. Section 121.291(d) requires an operator who intends to operate an aircraft in extended overwater operations to conduct a ditching demonstration. A full-scale ditching demonstration is necessary if a part 121 certificate holder has not performed a demonstration for the proposed type and model of aircraft.

C. Passengers. Passengers are used in ditching demonstrations only when required by an operator’s procedures to assist in removing and launching liferafts. Passengers shall receive no instructions before the demonstration except for those contained in the operator’s manual.

D. Aircraft Use. It is FAA policy to use an aircraft for all ditching demonstrations. An operator proposing to use a life-sized mockup or a floating device to conduct the demonstration must first have the approval of AFX-1.

E. Type Certification. During type certification, ditching emergency exits must be above the calculated waterline which would exist were the aircraft at rest in the water. The operator should obtain waterline and ditching exit information from the manufacturer. Stands must be in place at each emergency exit and wing. The tops of the stands must be positioned at the calculated waterline.

F. Time Limit. Regulations do not specify a maximum time limit for the demonstration. However, 15 minutes is considered the maximum time acceptable to prepare for ditching.
from the preparation for ditching coordination between the pilots and flight attendants (F/A) to the F/A briefing of passengers and cabin preparation to the simulated water landing.

NOTE: In the event an operator, proposing to operate a brand new make and model aircraft in part 121 extended overwater operations, seeks an exemption from the requirements of § 121.291(d) to conduct a full-scale ditching demonstration, the operator should provide their own or the manufacturer’s analysis proving that slide/raft inflation and deployment would not be impeded by the waterline and/or the inflation of any other slides/rafts if the aircraft were on the surface of the water. An important aspect of the full-scale ditching demonstration is its test of slide/raft interaction with the waterline approximated by the stands (this cannot be substituted by the land-based demonstration with the gear extended). In the absence of the full-scale ditching for initial introduction of a new aircraft make and model into part 121 service for extended overwater operations, analysis should be conducted to ensure that neither the sequence of slide/raft activation nor the configuration of all inflated slides/rafts in the best approximation of the waterline would interfere, and that the slide/rafts would properly inflate on the surface of the water.

3-2617 PARTIAL DITCHING DEMONSTRATION. Section 121.291(e) allows an operator to conduct a partial ditching demonstration if a full-scale ditching demonstration for the proposed type and model of aircraft has been successfully conducted by another part 121 operator.

3-2618 MANUFACTURER-CONDUCTED EVACUATION DEMONSTRATION. Manufacturers of transport category aircraft having more than 44 passenger seats must conduct a full-scale demonstration in order to be issued an TC. The manufacturer’s demonstration must be conducted according to the requirements of § 25.803.

A. ACO. The ACO has primary responsibility for planning, conducting, and evaluating manufacturer emergency evacuation demonstrations.

B. Section 25.803 Requirements. The requirements of § 25.803 were upgraded to be equivalent to those required by part 121. This was done so that one demonstration would suffice for both the issuance of an aircraft TC and compliance with the operational requirements of § 121.291. Coordination with the Air Transportation Division (AFS-200) personnel is necessary to ensure compliance with operational requirements.

1) If the manufacturer wants the demonstration to serve both the certification requirements of § 25.803(c) and the operational requirements of § 121.291(a), the demonstration shall be conducted according to part 121 appendix D.

2) AFS-200 and the ACO must concur on the acceptability of the manufacturer’s plan.

3) AFS-200 must participate in the actual demonstration.
4) In the absence of U.S. purchasers for an aircraft, crewmembers used in a manufacturer’s evacuation demonstration must be trained in a program similar to the emergency evacuation portion of training programs approved under part 121. This ensures that the full-scale evacuation demonstration will also meet the requirements of § 121.291.

3-2619 INCREASING SEATING CAPACITY BY ANALYSES AND TESTS, § 25.803(c).

A. Use of Analysis and Test Data. A combination of analyses and tests may be used to show that an aircraft can be evacuated within 90 seconds under the conditions specified in § 25.803(c). The analysis and test data must show that the emergency evacuation capability is equivalent to that shown in an actual demonstration. If the Administrator accepts the data, a demonstration need not be conducted.

B. Limitations of Test Data. FAA policy prohibits the use of analyses and tests to increase seating capacity more than five percent above that established by a full-scale evacuation demonstration.

C. Approval of Test Data. A 5-percent increase in seating capacity cannot be approved without the analyses and test data being evaluated by the ACO. AFX-1 will forward any request to increase up to five percent through the analysis and test method to the appropriate ACO.

D. Restrictions. The operator is not allowed, under any circumstances, to increase passenger capacity beyond the maximum exit capacity of the aircraft.

3-2620 PARTICIPANTS.

A. Representative Passenger Complement. In a full-scale aborted takeoff emergency evacuation demonstration, the operator must assemble a representative passenger complement. Before conducting the demonstration, the operator must ensure that the participants meet the appropriate criteria. If participants do not meet the criteria, the operator must repeat the demonstration.

1) Participants must be representative of a normal passenger complement as follows:

Table 3-119. Normal Passenger Complement

<table>
<thead>
<tr>
<th>Passenger</th>
<th>Age</th>
<th>Percentage of Full Seating Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult Females</td>
<td>12–60</td>
<td>30% minimum</td>
</tr>
<tr>
<td>Adult Males</td>
<td>12–60</td>
<td>50%–60%</td>
</tr>
<tr>
<td>Adult Males and Females</td>
<td>Over 60</td>
<td>5% minimum</td>
</tr>
<tr>
<td>(proportional mix)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Children (prorated by age)</td>
<td>3–11</td>
<td>5%–10%</td>
</tr>
<tr>
<td>Life-sized dolls</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2) The “life-sized dolls” referred to above must be carried by passengers to simulate infants two years old or younger.

Check with FSIMS to verify current version before using.
3) No employee of a certificate holder or manufacturer may be seated next to an exit.

4) Because of child labor laws in some localities, it may not always be possible to have children between the ages of 3 and 11 participating in full-scale evacuation demonstrations. In these situations, a proportional mix of the overall passenger complement may be substituted.

5) The operator may not practice, rehearse, or describe the demonstration for the passengers, nor may any participant have taken part in this type of demonstration within the preceding six months.

B. Company Officials. Company officials, such as Directors of Operations and Maintenance, must be available at the site of the demonstration.

1) The company officials present must have the authority to modify the demonstration plan on site.

2) They must be able to respond to the FAA with specific corrective actions for deficiencies that occur during the demonstration.

3) Company personnel may observe the demonstration, but the company must ensure that these persons do not pose a distraction or affect the demonstration’s outcome.

C. Safety Personnel. The company should provide safety personnel at strategic locations around the aircraft to protect passengers. Safety personnel may not assist crewmembers or otherwise participate in the evacuation. Safety personnel are used only to prevent passenger injury.

D. Non-Company Personnel. Non-company individuals who are not FAA employees must have specific reasons to observe the demonstration. Usually, these individuals will be representatives of the aircraft manufacturer, manufacturers of equipment used during the demonstration, or other organizations with a direct interest in aviation safety. The operator is responsible for all non-FAA personnel observing the demonstration.¹

E. Crewmembers.

1) Flight Deck. The flightcrew must be qualified in the aircraft to be used. However, they need not have completed the initial operating experience (IOE) requirement.

2) F/As. F/As must have completed an FAA-approved training program and passed a written or practical examination on the type of aircraft, emergency equipment, and procedures. F/As may not be provided additional emergency training or become familiarized with equipment before the demonstration.²

¹ Non-company personnel (observers) are also described in Volume 3, Chapter 30, Section 2, subparagraph 3-2482E and Volume 3, Chapter 30, Section 5, subparagraph 3-2556C6).
² F/As must meet the crewmember testing requirements of part 125, § 125.289.
NOTE: The FAA TL will select at least two complete crews to participate in the demonstration.

F. FAA Personnel. FAA observers should be limited to the following:

- ASIs from other offices whose operators will be acquiring the same or similar type aircraft as the one being demonstrated;
- New or current ASIs who require training for evacuation demonstrations;
- Office of Safety Standards officials or designees; and
- FAA personnel from the Certification Directorate, the AEG, or any other FAA office concerned with technical or engineering components of the aircraft.

3-2621 SELECTING EXITS.

A. Calculating the Number of Usable Exits.

1) In aircraft with an even number of exits, no more than 50 percent of the total number of exits and slides may be opened and deployed.

2) If an aircraft has an odd number of emergency exits, subtract one; 50 percent of the remaining number of exits shall be used in the demonstration.

3) All other exits must be blocked.

B. Selecting Individual Exits. Any emergency exit assigned to F/As as part of their evacuation duties may be selected for use during the demonstration, provided they are designated as primary exits in the company’s evacuation procedures.

C. Ventral (Stairs) and Tail Cone Exits. These should not be used unless they are paired with another exit. If there is any doubt as to which exits are paired, consult the ACO responsible for the TC of the aircraft make and model.

D. Exit Pairs. One from each pair of exits should be selected. Exit pairs should be identified by the operator in the interior configuration diagram.

E. Partial Demonstrations. Only the F/A’s primary exits, as designated by the operator’s manual, may be used during partial demonstrations.

1) Section 121.291(c)(1) requires that during a partial emergency evacuation demonstration, 50 percent of the floor-level and 50 percent of the non-floor-level exits be opened.

2) A secondary door or exit that could not possibly be opened and ready for use in 15 seconds should not be selected.
METHODS OF BLOCKING EXITS. The following are examples of acceptable methods of blocking exits:

A. Red Swatches of Cloth. Cover each door window and window exit with a swatch of red cloth. Secure a line to the cloth long enough to reach the ramp or hangar floor. At the initiation signal, designated ASIs will pull the lines to uncover the door windows and window exits that are to be used. Doors and windows that are not to be used will remain covered.

B. Red Lights. On the outside of the aircraft, rig red lights in front of the door windows and window exits. When illuminated, these simulate a fire at blocked exits. The lights must be illuminated simultaneously.

NOTE: The certificate holder/applicant is responsible to determine their method of blocking exits and present it to the FAA for approval.

INITIATION SIGNAL. All participants (FAA team, company personnel, and selected crewmembers) must concur with the initiation signal. The initiation signal should be the same both inside and outside of the aircraft.

A. Power Source Interruption. The preferred method of initiation is for a company employee to interrupt the aircraft’s normal source of power by one of the following actions:

- Disconnecting or turning off an external source of power or a ground power unit (GPU), or
- Disconnecting or turning off the auxiliary power unit (APU).

B. Signals. These actions provide a clear initiation signal in the following ways:

1) Inside the aircraft, the F/As and FAA team members will observe the normal cabin lighting extinguish and the illumination of the emergency lighting system. This is their signal to begin the evacuation demonstration.

2) Outside the aircraft, FAA observers stationed at each exit and the FAA observer, serving as the timekeeper, will observe the extinguishing of the external lights (e.g., taxi lights, anti-collision lights, position lights, and logo lights). This signal initiates the timing and necessary observation actions of the FAA team.

UNSatisfactory Demonstrations. The severity and basic cause of the deficiency must be considered. Minor deficiencies usually can be resolved by responsible
company personnel without having to declare the demonstration unsatisfactory. The following are examples of deficiencies of different degrees of severity:

NOTE: Safety Risk Management (SRM) rationale could increase the likelihood and probability of occupant injury or death.

A. **Crewmember Did Not Assess Conditions.** When using the glow stick “not illuminated” method to indicate a usable exit, the crewmember should still look out the window for a moment, and not simply open an exit if they don’t immediately see a glow stick. This failure could place the passengers at risk of injury.

B. **Crewmember Did Not Attempt to Operate Manual Inflation Handle.** One or more crewmembers fail to pull the manual inflation handle, regardless of whether the slide raft inflates. This should be compared to the performance standard in crewmember training. This failure could delay an emergency evacuation.

C. **Crewmember Opened Blocked Exit/Fire.** The crewmember did not meet the training standard (automatic failure). This could increase passenger injury rate or death rate.

D. **Premature Start of Evacuation.** Participant did not understand the signal to initiate the evacuation or failed to adequately assess conditions which contributed to a “start of evacuation before initiation signal.” This could adversely impact passenger survival rates. This failure indicates inadequate training and possible Crew Resource Management (CRM) issues.

E. **Appropriate Commands.** Review performance standards from the crewmember training curriculum. Failure to communicate crewmember instructions could adversely impact survival rates.

F. **Professionalism.** The participants should be cautioned against evacuating using the inflated slide. Participants should be warned that horseplay and jumping down the slide after the partial demonstration could result in a failure and potentially injure or put crewmembers at risk. Jumping down the slide results in automatic failure of the demonstration.

G. **Equipment Failure.**

1) Mechanical malfunction (power assist fail).

2) Slide raft doesn’t open or inflate properly.

3) Entire demonstration exceeds 15 seconds (from initiation signal to exit ready to use).

H. **Pass with Notation.**

1) A crewmember does not hold onto the assist handle during the demonstration.

2) A crewmember forgets exact wording of commands, such as saying “Release” or “Open” seatbelt instead of “Unfasten seatbelt and come this way.” A crewmember may panic.
or deviate significantly from the correct wording, such as substituting commands from another air carrier experience. Review the crewmember training performance standard.

3-2625 COORDINATION REQUIREMENTS. This task requires coordination with the POI and/or CSI or the CPM and the Safety Standards point of contact (POC). It may require coordination with the appropriate ACO, and with AFX-1.

3-2626 REFERENCES, FORMS, AND JOB AIDS (current editions).

A. References. Advisory Circular (AC) 121-24, Passenger Safety Information Briefing and Briefing Cards.


C. Job Aids. None.

3-2627 PROCEDURES FOR EMERGENCY EVACUATION DEMONSTRATION.

A. Determine the Need for an Emergency Evacuation Demonstration. The POI in coordination with the CSI (if applicable) or CPM and the CSI (local, if applicable) must determine if a demonstration is required.

1) A full-scale demonstration is required when:
   • The aircraft type, model, and proposed seating capacity have not been previously demonstrated either by a manufacturer or by another U.S. operator, or
   • The aircraft has undergone a change in its exit configuration and/or design (as determined by AFX-1).

2) A partial demonstration is required when:
   • An aircraft new to the operator has had a full-scale demonstration conducted by a part 121 operator or manufacturer for the maximum seating configuration proposed by the operator acquiring the aircraft;
   • The operator is undergoing original certification;
   • The POI and/or CSI determines whether a significant change has occurred in the number of F/As, their locations, or their duties and procedures; or
   • AFX-1 determines if a change has occurred in seating configuration, exits, or the aircraft’s design that would require a partial demonstration.

NOTE: If an operator proposes to operate an aircraft configured with less than 44 seats, even though the aircraft may have been previously TC’d with more than 44 seats, no demonstration is required.

B. Notify the Operator of Requirement. The POI or CPM will advise the operator in writing that an emergency evacuation demonstration is required. The operator must submit a plan for conducting the demonstration.
1) The operator must submit the plan at least 30 business-days in advance of a full or partial demonstration.

2) The operator’s plan shall contain a letter of request which states the following:
   - The applicable regulation which requires that a full-scale or partial emergency evacuation demonstration be conducted;
   - The aircraft type and model, specifying the full seating capacity (including crewmembers) to be demonstrated;
   - The number of F/As to be used during the demonstration;
   - The proposed date, time, and location of the evacuation demonstration;
   - The name and telephone number of the company’s evacuation demonstration coordinator;
   - A statement that the representative passenger complement meets the requirements in part 121 appendix D(a)(7);
   - A description of how the operator proposes to initiate the demonstration;
   - A description of the timing signal; and
   - A description of how the operator intends to block exits.

3) A diagram shall be included in the plan, representing the aircraft to be demonstrated. The diagram must show the following:
   a) The location and designation of all exits by type and the designated exit pairs.
   b) The assigned seating location of each required crewmember during takeoff.
   c) The interior cabin configuration, showing the location of individual passenger seats, galleys, aisles, lavatories, and passenger compartment partitions and bulkheads.
   d) The location and type of emergency equipment on the aircraft, including:
      - Fire extinguishers,
      - Portable oxygen bottles/masks,
      - Megaphones,
      - Crash axes,
      - Emergency ropes/tapes,
      - Liferafts/slide rafts,
      - Individual flotation devices or life preservers, and
      - First aid and medical kits.

4) The plan must contain copies of the following documents:
   - The appropriate crewmember manual pages describing emergency evacuation duties and responsibilities and
   - A copy of the passenger information card to be used on the aircraft during revenue operations.
5) The operator’s plan must include the following additional information:

- A description of the emergency equipment installed on the aircraft, including the type and model of each item and the preflight requirements, as applicable;
- A list of all crewmembers qualified to participate in the demonstration;
- A description of how the operator will ensure that the demonstration is conducted in the dark of the night or in conditions simulating the dark of the night; and
- A description of how the operator will ensure that the aircraft is positioned in a location, either indoors or outdoors, which will allow the unobstructed deployment of all emergency evacuation slides or slide rafts, as applicable.

C. Evaluate Operator’s Plan and Letter of Request. The POI, CPM, and/or CSI will ensure that all necessary information is included in the submission and respond to the operator’s plan in a timely manner.

1) Resolve minor omissions or discrepancies by contacting the company’s evacuation demonstration coordinator.

2) If the operator’s plan has a significant number of required items or documents missing, return the entire submission to the operator with a written explanation as to why it is unacceptable. Advise the operator that the FAA will take no further action until an acceptable plan is submitted.

3) Once all required elements have been submitted, the POI/CPM and/or CSI will analyze and evaluate the operator’s plan. Ensure that the information is acceptable and consistent with the proposed type of demonstration.

4) The POI and/or CSI should ensure that:

   a) The operator’s emergency training program has been observed and approved by the FAA.

   b) Evacuation procedures in the operator’s manuals, including crewmember assignments, are realistic, practical, and in compliance with § 121.397.

   c) The passenger information card is understandable and consistent with the type and model of aircraft to be demonstrated.

   d) The emergency equipment is acceptable for the type of operation proposed.

5) Conduct Necessary Onsite Evaluation(s). Certain items in the proposal may require onsite evaluation. Determine if the operator is making provisions for participant safety, including the use of safety observers, stands, padding, mats, and other appropriate measures.

6) Document Discrepancies. Resolve discrepancies with the company’s evacuation demonstration coordinator.
a) If major discrepancies are found, or if the FAA and the operator are unable to resolve significant issues, return the operator's plan with a letter of explanation. Inform the operator that the discrepancies outlined in the letter must be corrected and a plan resubmitted before the FAA takes further action.

b) If the submission is acceptable, a letter will be sent to the certificate holder’s evacuation demonstration coordinator informing them that the plan has been accepted by the FAA.

D. Assemble FAA Team Members.

1) TL. For an initial certification, the CPM may serve as the demonstration TL or he or she may delegate the role of TL to a CSI. For an existing operator, the office manager and/or Front Line Manager (FLM) will assign either the operator’s POI or CSI to serve as demonstration TL.

2) Additional Team Members. Remaining FAA team members will be assigned as needed. The team should include qualified Cabin Safety, Operations, Maintenance, and Avionics ASIs familiar with part 121 operations and requirements.

E. Conduct Predemonstration Meeting With Operator. Meet with the operator’s evacuation demonstration coordinator and appropriate operator personnel.

1) Review the demonstration plan and ensure that the operator’s evacuation demonstration coordinator is thoroughly familiar with the criteria to be used during the demonstration.

2) Review the training methods, the timing criteria, and the method and signals for initiating the demonstration.

3) With the operator, determine the signal to be used to terminate the demonstration, such as an air horn or other clear and distinguishable audible signal. Agree upon a suitable device and test it to ensure its adequacy.

NOTE: Previous experience has shown that a whistle blast may not be adequate.

4) Resolve any open questions or issues the operator’s evacuation demonstration coordinator may have before conducting the demonstration.

F. Conduct the FAA Team Meeting. Approximately 15 business-days prior to the demonstration, the FAA TL will:

1) Provide specific team member assignments for the demonstration. Include the following:

   • Timekeeping,
   • Position (inside or outside the aircraft), and
   • Inspecting the aircraft, emergency equipment, and any applicable documents.
2) Distribute an aircraft diagram to each ASI showing assigned locations for the demonstration.

3) Determine which emergency exits shall be opened. Review the operator’s proposal for blocking the remaining exits.

4) Select typical crewmembers (at least 2 full sets of crewmembers, pilots and F/As) to be used in the demonstration from the list provided and submit to the operator. Do not select the following:
   - Persons used in previous demonstrations,
   - Emergency procedures instructors,
   - Supervisors,
   - Check airmen,
   - Union safety representatives, or
   - Others that may have an above average level of competency or experience.

5) Review regulatory requirements and demonstration criteria.

G. Select Exits and Approve Blocking Method.

   1) Carefully review the operator’s emergency evacuation procedures. Determine the number of usable exits.

   2) One from each pair of exits should be selected.

   3) After selecting exits to be used, the team must ensure that the operator does not obtain that information.

   4) Once a method of blocking exits has been determined, notify the company’s evacuation demonstration coordinator of FAA concurrence with the method.

H. Test and Approve the Initiation Signal. Ensure that all team members are aware of the initiation signal and can hear it from their assigned positions.

I. Perform a Predemonstration Inspection.

   1) The FAA team will ensure that the aircraft is configured and equipped for takeoff according to the operator’s manuals and procedures.

      a) The aircraft must include the proposed full passenger seating configuration.

      b) All appropriate emergency equipment must be installed and in good working order in accordance with the operator’s manuals.
c) Inspect each of the following items to ensure regulatory compliance with part 121:

- Hand-held fire extinguishers for crew, passenger, and cargo compartments;
- Protective Breathing Equipment (PBE);
- First aid equipment;
- Crash axe;
- Megaphones;
- Interior emergency exit markings;
- Flotation devices or life preservers;
- Lighting for interior emergency exit markings;
- Emergency light operation;
- Emergency exit operating handles;
- Emergency exit access;
- Exterior exit markings;
- Exterior emergency lighting and escape route;
- Floor-level exits;
- Additional emergency exits;
- Ventral or tail cone exits;
- Portable lights;
- Seats, safety belts, and shoulder harnesses;
- Emergency equipment required for extended overwater operations;
- Public address (PA) system;
- Passenger information signs/placards;
- Aircraft fire detection and protection system (operational test);
- Passenger information cards;
- Cockpit escape system; and
- Slides and slide rafts.

2) For partial emergency evacuation demonstrations, the slides may be beyond scheduled inspection criteria. The operator must request this option in the demonstration plan. The plan must state that the operator accepts full responsibility for any failure of the demonstration due to a malfunction of the slides. The FAA TL must either accept or deny this proposal.

3) In a full-scale demonstration, stands or ramps must be placed appropriately for use by evacuees to descend from the wing to the ground. If stands or ramps are to be used, they must be placed at both overwing exits to ensure that the operator does not learn which exits will be used. The FAA team will:

   a) Inspect the stands and ramps for structural integrity and security.

   b) Inspect any other safety equipment, such as mats, placed on the ground to protect participants.
c) Ensure any equipment which is not part of the aircraft’s EES will not be used to aid participants in reaching the ground.

4) Ensure that dark of night conditions exist in order to evaluate the following:

- The aircraft’s emergency lighting system, and
- Passenger and crewmember performance in darkened conditions.

5) Ensure that the operator has the following present at the demonstration:

- Appropriate safety personnel to prevent passenger injury.
- Company personnel with the authority to direct demonstration modifications as required by the FAA.
- The minimum number of proposed F/As for use on the aircraft during part 121 operations. In no case shall this number be less than that specified in § 121.391.
- For full-scale demonstrations, passengers meeting the criteria of part 121 appendix D(a)(7).

J. Predemonstration Briefings.

1) Crewmember Briefing. Ensure that the operator’s evacuation demonstration coordinator and the FAA TL provide crewmembers with specific information regarding the demonstration.

   a) The FAA TL must ensure that the following items are discussed:

   - The purpose of the demonstration;
   - The initiation signal which begins the demonstration;
   - The significance of the 90-second time limit for full-scale evacuations or the 15-second time limit for partial evacuations;
   - The signal to be used for stopping the demonstration; and
   - The importance of safety during the demonstration, including crewmember responsibilities and safety observer duties and limitations.

   b) The FAA TL will ensure that the crewmembers understand that any evacuation activity in progress must immediately cease with a “stop” signal.

2) Attend the Operator’s Passenger Briefing. Ensure that prior to the demonstration, the company’s evacuation demonstration coordinator and the FAA TL provide the passengers the following information:

   a) The purpose of the demonstration is to evaluate how quickly the aircraft can be safely evacuated.

   b) Passengers must pay attention to the F/As’ instructions.
c) Individual safety is not to be compromised at any time during the demonstration.

3) **Brief the FAA Team Members.** The FAA TL will remind the FAA team members not to discuss the results of observations with persons other than the TL. Review the following items before conducting the demonstration:

- The objectives of the demonstration,
- The initiation signal,
- Observer assignments with regard to exits to be used or blocked, and
- The signal to stop the demonstration.

K. **Conduct the Demonstration.**

1) Advise the operator’s evacuation demonstration coordinator to board the passengers as routinely as possible and prepare for departure. No passenger may be assigned a specific seat unless the FAA team determines such assignments are in accordance with the operator’s normal boarding procedures.

2) For both full-scale and partial demonstrations, ensure that the F/As accomplish the following:

- Prepare for a normal departure according to the operator’s procedures, including all announcements and briefings, closing and securing all exits and galleys, and arming the EES for takeoff;
- Conduct a passenger briefing in accordance with § 121.571 and company procedures; and
- Sit at their assigned jump seat position with restraint systems fastened.

3) For a full-scale evacuation, distribute a reasonable amount of carry-on baggage, blankets, pillows, and clothing in the aisles and emergency exit access ways to create minor obstructions.

   a) Carry-on luggage that will fit under a passenger seat, such as small suitcases, gym bags, aircraft flight bags, and briefcases, should be filled with clothes or newspapers and placed in the main aisles.

   b) There must be one bag per seat row for each aisle.

   c) Some bags should be placed in the aisles and passageways.

   d) Pillows and blankets should be scattered in the main aisles.

4) Ensure that each external door and exit and each internal door or curtain is in position for a normal takeoff.
5) The Operations ASI (POI, Partial Program Manager (PPM), etc.) will ensure that the flightcrew accomplishes all tasks on appropriate checklists and configures the aircraft for a normal takeoff before the initiation signal is given. He or she will also ensure that the flightcrew members are seated in their normal positions with restraint systems fastened.

6) Before a full-scale evacuation demonstration, the Operations ASI (POI, PPM, etc.) will ensure that the aircraft’s wing flaps are fully extended, if required by the operator’s emergency evacuation procedures.

   a) Stands or ramps (if used) should be positioned accordingly.

   b) Wing flaps shall not be repositioned until after the demonstration.

7) Ensure that after completing all required pre-takeoff actions, the captain informs the FAA ASI (positioned forward of the nose of the aircraft) by ground interphone that the aircraft is ready for takeoff.

8) The FAA ASI (positioned forward of the nose of the aircraft) will ensure that all FAA team members and company safety observers (if used) are ready and in position.

9) An FAA ASI will issue a warning signal, which should precede the initiation signal by approximately 30 seconds.

10) The Operations ASI (POI, PPM, etc.) will instruct the company evacuation demonstration coordinator to initiate the demonstration.

11) The FAA ASI stationed at the nose of the aircraft will begin timing with two stopwatches (a primary and a backup) when the external aircraft lights extinguish.

12) For a full-scale demonstration, each FAA observer assigned to an opened exit will count the passengers as they exit. After the termination signal, each observer will ensure that no passenger or crewmember remains on the aircraft or uses the exits. Should any passenger or crewmember remain on board or use an exit after the termination signal, the demonstration will be declared unsatisfactory.

13) For a partial demonstration, each FAA observer assigned to an exit to be used will determine if the assigned exit was opened and each slide or slide raft was ready for use before the termination signal. Should any exit, slide, or slide raft remain not ready for use after the termination signal, the demonstration will be declared unsatisfactory.

14) FAA team members assigned to the cabin must ensure that all required equipment worked properly during the demonstration.

15) At the end of the appropriate time period, an FAA team member will issue a clear, audible signal terminating the demonstration.
3-2628  PROCEDURES FOR DITCHING DEMONSTRATIONS.

A. Determine the Need for a Ditching Demonstration.

1) A full-scale ditching demonstration is required when the operator proposes to operate a specific aircraft type and model under the following circumstances:

- When no ditching demonstration has been performed for the proposed type and model of aircraft by another part 121 certificate holder, or
- When planning to initiate flights into extended overwater areas for the first time with an aircraft the operator has previously operated over land areas.

2) A partial ditching demonstration is required when the proposed type and model has been previously demonstrated by another part 121 operator.

B. Notify the Operator of the Requirement. The FAA will advise the operator’s demonstration coordinator in writing that a ditching demonstration is required. The operator must submit a plan for conducting the demonstration. The CPM and/or POI and CSI (if applicable) must ensure that the operator’s demonstration coordinator understands which information and documents are required for the plan to be accepted for evaluation.

1) If the operator plans to conduct the ditching demonstration in conjunction with an emergency evacuation demonstration, the operator’s demonstration plan must include the following additional information:

- Type of ditching demonstration (full-scale or partial),
- Copies of the operator’s manual relating to crewmembers’ ditching duties and responsibilities, and
- A description of applicable emergency equipment used for ditching, including the type and model.

2) If the ditching demonstration is not conducted in conjunction with an emergency evacuation demonstration, the plan must be submitted at least 30 business-days before the actual demonstration. The plan must include the information listed above and the following additional information:

- The aircraft model and type,
- A list of all crewmembers who are trained and able to participate in the demonstration,
- The number of passengers, as required by the operators’ procedures to locate, reposition, and launch liferafts (if applicable),
- The proposed date, time, and location of the demonstration, and
- The name and telephone number of the company’s ditching demonstration coordinator.
3) A diagram shall be included in the plan, representing the aircraft to be demonstrated. The diagram must show the following:

a) The location and designation of all exits by type and the designated exit pairs, and

b) The location of emergency ditching equipment, including:

   • Liferafts and/or slide rafts,
   • Survival radios,
   • Emergency Location Transmitters (ELT),
   • Pyrotechnic signaling devices, and
   • Passenger/crewmember life preservers and individual flotation devices, if applicable.

C. Evaluate the Operator’s Plan. The FAA will review the proposal to ensure the following:

   • The proposed demonstration will meet the criteria of part 121,
   • The emergency training program and ditching procedures in the operator’s manual have been approved and accepted, and
   • The operator’s training program and ditching procedures provide for safe operating practices.

D. Assemble the FAA Team.

1) If the ditching demonstration is conducted in conjunction with an emergency evacuation demonstration, the same team will observe and evaluate both demonstrations.

2) If the ditching demonstration is conducted alone, the office manager and/or FLM will appoint a FAA ditching demonstration team and TL.

E. Perform Predemonstration Inspection. Before the ditching demonstration begins, the team must inspect each item of emergency ditching equipment for compliance with appropriate airworthiness and other directives. Stands must be placed at each emergency exit and wing.

F. Conduct the Demonstration. The demonstration must be conducted during daylight hours or in a lighted hangar.

1) Ensure that ASIs, crewmembers, and passengers, if required, are at their assigned positions. All required crewmembers must be available and used during the demonstration.

2) Instruct the captain to commence the demonstration. The captain will initiate the demonstration by ordering the crewmembers to prepare for ditching.

3) Begin timing when the captain announces to prepare for ditching.
4) Observe crewmembers’ preparation activities. Within 15 minutes of the ditching announcement, crewmembers must accomplish the following:

- Correctly put on life preservers,
- Brief passengers,
- Secure the cabin,
- Complete all required checklists, and
- Be prepared to evacuate.

5) At the end of 15 minutes, advise the captain to announce that the aircraft is in the water. At this time the crew must be prepared for a simulated water landing.

6) Observe the deployment of the rafts. If applicable, ensure that all liferafts are removed from stowage within a reasonable period of time.

   a) For full-scale demonstrations, each liferaft and slide raft must be launched and inflated. All required emergency equipment must be placed in the rafts.

   b) For a partial ditching demonstration, one liferaft or slide raft, designated by the FAA TL, must be launched and inflated. On aircraft configured with slide rafts, it is not necessary to detach each slide raft from its door mounting. Any liferafts stowed inside the aircraft must be removed from stowage and placed on the cabin floor for inspection.

7) Inspect each slide raft for airworthiness.

8) Ensure that each evacuee enters a liferaft or slide raft.

9) Ensure that crewmembers adequately locate and describe the use of each piece of emergency equipment in their assigned rafts.

10) Question crewmembers about actual launch procedures.

3-2629 EVALUATING EMERGENCY EVACUATIONS AND DITCHING DEMONSTRATIONS.

A. Evaluate the Demonstration. After the demonstration, the FAA TL will have the demonstration crew sequestered. Assemble and confer with FAA team members in an area away from the operator’s personnel. The FAA team will reach an agreement on the results before the FAA TL discusses the demonstration results with the operator’s ditching demonstration coordinator and appropriate personnel.

1) Evaluate the following areas of the demonstration:

- Crewmember compliance and effectiveness in performing assigned duties and responsibilities,
- Flightcrew effectiveness in exercising command responsibilities,
• The coordination and communication between the flightcrew and F/As, and
• The operation and airworthiness of emergency equipment. Note any
deficiencies or delays caused by the emergency equipment.

2) Ensure that each designated exit and slide was opened, deployed, and ready for
use within appropriate time criteria.

3) Ensure that the following occurred:
   a) For full-scale emergency evacuation demonstrations, designated exits and
      slides were properly operated and, if applicable, all passengers and crewmembers evacuated
      within 90 seconds.
   b) For a partial emergency evacuation demonstration, designated exits were
      opened and slides ready for use within 15 seconds.
   c) For ditching demonstrations, the cabin, passengers (if applicable), and F/As
      were ready for a water landing within 15 minutes. Liferafts were efficiently removed from
      stowage. Each designated life vest, liferaft, and slide raft was properly inflated.

B. Determine if Demonstration Was Unsatisfactory.

1) A demonstration must be declared unsatisfactory if the operator fails to meet the
specified time limit.

2) A demonstration may be declared unsatisfactory for the following reasons:
   • Crewmember ineffectiveness or equipment malfunctions, or
   • The occurrence of a relatively severe deficiency due to improper company
      training, procedures, or maintenance.

3) If the inspection of the aircraft and emergency equipment is unsatisfactory,
determine if the problem can be corrected immediately.
   a) If the problem cannot be corrected immediately, reschedule the
demonstration.
   b) If the problem can be corrected immediately, ensure that corrective action
      is taken.

C. Advise the Operator of the Results of the Demonstration. Once an agreement on
the demonstration results has been reached, advise the applicant or operator’s ditching
demonstration coordinator and appropriate personnel of the results.

1) If the results are unsatisfactory, issue a letter of disapproval to the operator
   or applicant.

2) If the results are satisfactory, issue a letter of approval to the operator or applicant.
D. **Complete Emergency Evacuation Demonstration Report.** The TL is responsible for preparation and distribution of the demonstration report. The report must include the following:

- FAA Form 8430-1, Emergency Evacuation Demonstration Report. One form is required for each demonstration attempt.
- The passenger information briefing card.
- A diagram of the aircraft, including emergency equipment, exits, exits used, the number of approved passenger seats, and the location of seats which were used by F/As.

E. **Distribute the Report.** Forward a copy of the report to Safety Standards. Retain the original package in the district office file.

3-2630 TASK OUTCOMES.

A. **Complete the Following DCTs in SAS Automation:**

1) Element 2.3.1 (OP) Appropriate Operational Equipment.


B. **Complete the Task.** Completion of this task will result in one of the following:

- A letter of demonstration approval, or
- A letter of demonstration disapproval.

C. **Document the Task.** File all supporting paperwork in the operator’s office file and in SAS Automation.

3-2631 FUTURE ACTIVITIES. Normal surveillance.

RESERVED. Paragraphs 3-2632 through 3-2945.