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(1) Dry chemical or halon 1211 through a hand line, 5 pounds per second.

(2) Dry chemical or halon 1211 through a turret, 16 pounds per second.

(i) *Extinguishing agent substitutions.* The following extinguishing agent substitutions may be made:

(1) Protein or fluoroprotein foam concentrates may be substituted for AFFF. When either of these substitutions is selected, the volume of water to be carried for the substitute foam production shall be calculated by multiplying the volume of water required for AFFF by the factor 1.5.

(2) Sodium- or potassium-based dry chemical or halon 1211 may be substituted for AFFF. Up to 30 percent of the amount of water specified for AFFF production may be replaced by dry chemical or halon 1211, except that for airports where such extreme climatic conditions exist that water is either unmanageable or unobtainable, as in arctic or desert regions, up to 100 percent of the required water may be replaced by dry chemical or halon 1211. When this substitution is selected, 12.7 pounds of dry chemical or halon 1211 shall be substituted for each gallon of water used for AFFF foam production.

(3) Sodium- or potassium-based dry chemical or halon 1211 may be substituted for protein or fluoroprotein foam. When this substitution is selected, 8.4 pounds of dry chemical or halon 1211 shall be substituted for one gallon of water for protein or fluoroprotein foam production.

(4) AFFF may be substituted for dry chemical or halon 1211. For airports where meteorological conditions, such as consistently high winds and precipitation, would frequently prevent the effective use of dry chemical or halon 1211, up to 50 percent of these agents may be replaced by water for AFFF production. When this substitution is selected, one gallon of water for foam production with the commensurate quantity of AFFF shall be substituted for 12.7 pounds of dry chemical or halon 1211.

(5) Potassium-based dry chemical may be substituted for sodium-based dry chemical. Where 500 pounds of sodium-based dry chemical is specified,

450 pounds of potassium-based dry chemical may be substituted.

(6) Other extinguishing agent substitutions acceptable to the Administrator may be made in amounts that provide equivalent firefighting capability.

(j) In addition to the quantity of water required, each vehicle required to carry AFFF shall carry AFFF in an appropriate amount to mix with twice the water required to be carried by the vehicle.

(k) FAA Advisory Circulars in the 150 series contain standards and procedures for AFFF equipment and agents which are acceptable to the Administrator.

[Doc. No. 24812, 52 FR 44282, Nov. 18, 1987; Amdt. 139-14, 53 FR 4120 and 4258, Feb. 12, 1988]

**§ 139.319 Aircraft rescue and firefighting: Operational requirements.**

(a) Except as provided in paragraph (c) of this section, each certificate holder shall provide on the airport, during air carrier operations at the airport, at least the rescue and firefighting capability specified for the Index required by § 139.317.

(b) *Increase in Index.* Except as provided in paragraph (c) of this section, if an increase in the average daily departures or the length of air carrier aircraft results in an increase in the Index required by paragraph (a) of this section, the certificate holder shall comply with the increased requirements.

(c) *Reduction in rescue and firefighting.* During air carrier operations with only aircraft shorter than the Index aircraft group required by paragraph (a) of this section, the certificate holder may reduce the rescue and firefighting to a lower level corresponding to the Index group of the longest air carrier aircraft being operated.

(d) Any reduction in the rescue and firefighting capability from the Index required by paragraph (a) of this section in accordance with paragraph (c) of this section shall be subject to the following conditions:

(1) Procedures for, and the persons having the authority to implement, the reductions must be included in the airport certification manual.

(2) A system and procedures for recall of the full aircraft rescue and firefighting capability must be included in the airport certification manual.

(3) The reductions may not be implemented unless notification to air carriers is provided in the Airport/Facility Directory or Notices to Airmen (NOTAM), as appropriate, and by direct notification of local air carriers.

(e) *Vehicle communications.* Each vehicle required under §139.317 shall be equipped with two-way voice radio communications which provides for contact with at least—

(1) Each other required emergency vehicle;

(2) The air traffic control tower, if it is located on the airport; and

(3) Other stations, as specified in the airport emergency plan.

(f) *Vehicle marking and lighting.* Each vehicle required under §139.317 shall—

(1) Have a flashing or rotating beacon; and

(2) Be painted or marked in colors to enhance contrast with the background environment and optimize daytime and nighttime visibility and identification.

(g) FAA Advisory Circulars in the 150 series contain standards for painting, marking and lighting vehicles used on airports which are acceptable to the Administrator.

(h) *Vehicle readiness.* Each vehicle required under §139.317 shall be maintained as follows:

(1) The vehicle and its systems shall be maintained so as to be operationally capable of performing the functions required by this subpart during all air carrier operations.

(2) If the airport is located in a geographical area subject to prolonged temperatures below 33 degrees Fahrenheit, the vehicles shall be provided with cover or other means to ensure equipment operation and discharge under freezing conditions.

(3) Any required vehicle which becomes inoperative to the extent that it cannot perform as required by §139.319(h)(1) shall be replaced immediately with equipment having at least equal capabilities. If replacement equipment is not available immediately, the certificate holder shall so notify the Regional Airports Division Manager and each air carrier using the

airport in accordance with §139.339. If the required Index level of capability is not restored within 48 hours, the airport operator, unless otherwise authorized by the Administrator, shall limit air carrier operations on the airport to those compatible with the Index corresponding to the remaining operative rescue and firefighting equipment.

(i) *Response requirements.* (1) Each certificate holder, with the airport rescue and firefighting equipment required under this part and the number of trained personnel which will assure an effective operation, shall—

(i) Respond to each emergency during periods of air carrier operations; and

(ii) When requested by the Administrator, demonstrate compliance with the response requirements specified in this section.

(2) The response required by paragraph (i)(1)(ii) of this section shall achieve the following performance:

(i) Within 3 minutes from the time of the alarm, at least one required airport rescue and firefighting vehicle shall reach the midpoint of the farthest runway serving air carrier aircraft from its assigned post, or reach any other specified point of comparable distance on the movement area which is available to air carriers, and begin application of foam, dry chemical, or halon 1211.

(ii) Within 4 minutes from the time of alarm, all other required vehicles shall reach the point specified in paragraph (i)(2)(i) of this section from their assigned post and begin application of foam, dry chemical, or halon 1211.

(j) *Personnel.* Each certificate holder shall ensure the following:

(1) All rescue and firefighting personnel are equipped in a manner acceptable to the Administrator with protective clothing and equipment needed to perform their duties.

(2) All rescue and firefighting personnel are properly trained to perform their duties in a manner acceptable to the Administrator. The training curriculum shall include initial and recurrent instruction in at least the following areas:

(i) Airport familiarization.

(ii) Aircraft familiarization.

(iii) Rescue and firefighting personnel safety.

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(iv) Emergency communications systems on the airport, including fire alarms.

(v) Use of the fire hoses, nozzles, turrets, and other appliances required for compliance with this part.

(vi) Application of the types of extinguishing agents required for compliance with this part.

(vii) Emergency aircraft evacuation assistance.

(viii) Firefighting operations.

(ix) Adapting and using structural rescue and firefighting equipment for aircraft rescue and firefighting.

(x) Aircraft cargo hazards.

(xi) Familiarization with firefighters' duties under the airport emergency plan.

(3) All rescue and firefighting personnel participate in at least one live-fire drill every 12 months.

(4) After January 1, 1989, at least one of the required personnel on duty during air carrier operations has been trained and is current in basic emergency medical care. This training shall include 40 hours covering at least the following areas:

(i) Bleeding.

(ii) Cardiopulmonary resuscitation.

(iii) Shock.

(iv) Primary patient survey.

(v) Injuries to the skull, spine, chest, and extremities.

(vi) Internal injuries.

(vii) Moving patients.

(viii) Burns.

(ix) Triage.

(5) Sufficient rescue and firefighting personnel are available during all air carrier operations to operate the vehicles, meet the response times, and meet the minimum agent discharge rates required by this part;

(6) Procedures and equipment are established and maintained for alerting rescue and firefighting personnel by siren, alarm, or other means acceptable to the Administrator, to any existing or impending emergency requiring their assistance.

(k) *Emergency access roads.* Each certificate holder shall ensure that roads which are designated for use as emergency access roads for aircraft rescue and firefighting vehicles are maintained in a condition that will support

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those vehicles during all-weather conditions.

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**§ 139.321 Handling and storing of hazardous substances and materials.**

(a) Each certificate holder which acts as a cargo handling agent shall establish and maintain procedures for the protection of persons and property on the airport during the handling and storing of any material regulated by the Hazardous Materials Regulations (49 CFR part 171, *et seq.*), that is, or is intended to be, transported by air. These procedures shall provide for at least the following:

(1) Designated personnel to receive and handle hazardous substances and materials.

(2) Assurance from the shipper that the cargo can be handled safely, including any special handling procedures required for safety.

(3) Special areas for storage of hazardous materials while on the airport.

(b) Each certificate holder shall establish and maintain standards acceptable to the Administrator for protecting against fire and explosions in storing, dispensing, and otherwise handling fuel, lubricants, and oxygen (other than articles and materials that are, or are intended to be, aircraft cargo) on the airport. These standards shall cover facilities, procedures, and personnel training and shall address at least the following:

(1) Grounding and bonding.

(2) Public protection.

(3) Control of access to storage areas.

(4) Fire safety in fuel farm and storage areas.

(5) Fire safety in mobile fuelers, fueling pits, and fueling cabinets.

(6) After January 1, 1989, training of fueling personnel in fire safety in accordance with paragraph (e) of this section.

(7) The fire code of the public body having jurisdiction over the airport.

(c) Each certificate holder shall, as a fueling agent, comply with and, except as provided in paragraph (h) of this section, require all other fueling agents operating on the airport to comply