

Case study: Minimum usable amounts of extinguishing agents

Iraia Irazabal

Aerodrome Certification

Bangkok, Thailand, 20 to 24 of January 2020

EU-South East Asia Aviation Partnership Project (EU-SEA APP)

This project is funded by the European Union and implemented by the European Union Aviation Safety Agency - EASA

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- In this part of the course, the instructors will propose a practical study case, related to the theoretical subject provided.
- The intention for this case is that attendants, by groups, analyze the case, and achieve possible conclusions.
- On the groups have exposed their conclusions, the instructors will open a discussion on the content, to gather all the points of view.



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→ The CAA of the country The Andals is inspecting extinguishing agents of the aerodrome operator of the Donosti airport, where :

- The CAT OACI SEI is **7** and the **foam** used is performance type level **B** (mixed with water with a **6%** concentration).
- The following vehicles are operative:

Vehicle	Water capacity (litres)	Foam capacity (litres)	Discharge rate foam solution (litres/min)	Complementary agent (kg)	Discharge rate complementary agent (kg/seg)
H1	5.000	600	2.500	125	6,5
H2	7.500	700	3.000	250	6,5

- The aerodrome operator has the following extinguishing agents in storage:
 - 2.000 litres of foam performance type B.
 - 300 kg of complementary agent.

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1. Is the aerodrome operator complying with the requirements for extinguishing agents (water, foam and discharge rate)?
2. Does the aerodrome operator have enough extinguishing agents in storage?
3. You decide to carry out the response time test during the audit, with the following results:
 - The first vehicle to arrive is H1 and arrives in 2 minutes and 50 seconds.
 - The H2 arrives in 3 minutes and 15 seconds.
4. Is the aerodrome operator in compliance with the requirements for the emergency response test?



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→ Regulatory requirements:

9.2.15 **Recommendation.**— *The amount of foam concentrate provided on a vehicle should be sufficient to produce at least two loads of foam solution.*

Aerodrome category	Rescue and firefighting vehicles
1	1
2	1
3	1
4	1
5	1
6	2
7	2
8	3
9	3
10	3

Table 9-2. Minimum usable amounts of extinguishing agents

Aerodrome category	Foam meeting performance level A		Foam meeting performance level B		Foam meeting performance level C		Complementary agents	
	Water (L)	Discharge rate foam solution/minute	Water (L)	Discharge rate foam solution/minute	Water (L)	Discharge rate foam solution/minute	Dry chemical powders (kg)	Discharge Rate (kg/second)
		(L)		(L)		(L)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	350	350	230	230	160	160	45	2.25
2	1 000	800	670	550	460	360	90	2.25
3	1 800	1 300	1 200	900	820	630	135	2.25
4	3 600	2 600	2 400	1 800	1 700	1 100	135	2.25
5	8 100	4 500	5 400	3 000	3 900	2 200	180	2.25
6	11 800	6 000	7 900	4 000	5 800	2 900	225	2.25
7	18 200	7 900	12 100	5 300	8 800	3 800	225	2.25
8	27 300	10 800	18 200	7 200	12 800	5 100	450	4.5
9	36 400	13 500	24 300	9 000	17 100	6 300	450	4.5
10	48 200	16 600	32 300	11 200	22 800	7 900	450	4.5



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→ Regulatory requirements:

9.2.22 Recommendation.— *A reserve supply of foam concentrate, equivalent to 200 per cent of the quantities identified in Table 9-2, should be maintained on the aerodrome for vehicle replenishment purposes.*

Note.— *Foam concentrate carried on fire vehicles in excess of the quantity identified in Table 9-2 can contribute to the reserve.*

9.2.23 Recommendation.— *A reserve supply of complementary agent, equivalent to 100 per cent of the quantity identified in Table 9-2, should be maintained on the aerodrome for vehicle replenishment purposes. Sufficient propellant gas should be included to utilize this reserve complementary agent.*



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→ Regulatory requirements:

9.2.27 The operational objective of the rescue and firefighting service shall be to achieve a response time not exceeding three minutes to any point of each operational runway, in optimum visibility and surface conditions.

9.2.28 **Recommendation.**— *The operational objective of the rescue and firefighting service should be to achieve a response time not exceeding two minutes to any point of each operational runway, in optimum visibility and surface conditions.*

9.2.29 **Recommendation.**— *The operational objective of the rescue and firefighting service should be to achieve a response time not exceeding three minutes to any other part of the movement area, in optimum visibility and surface conditions.*

Note 1.— Response time is considered to be the time between the initial call to the rescue and firefighting service, and the time when the first responding vehicle(s) is (are) in position to apply foam at a rate of at least 50 per cent of the discharge rate specified in Table 9-2.



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→ Some numbers...

Cat 7 requires:

- 12.100 litres of water for Foam with performance level B.
- Foam performance level B, has to be mixed with a 6%: 726 litres.
- Two loads of foam solution must be provided: **1.452 litres of foam needed.**



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