



भारतीय विमानपत्तन प्राधिकरण
AIRPORTS AUTHORITY OF INDIA

संदर्भ संख्या: भा.वि.प्रा./तिरुच्चि/आर.टी.ऐ
Ref. No: AAI/TR/RTI/ 5808-10

दिनांक:
Dated: 25.08.2025

सेवा में / To:
MR. BABU

ईमेल द्वारा / By
email: krishnaradha1885@gmail.com
& ऑनलाइन आरटी आई पोर्टल में अपलोड
/ Upload in Online RTI portal

महोदय / Sir,

विषय: आरटीआई अधिनियम 2005 के तहत सूचना - तत्संबंधी।
Sub: Information under RTI ACT 2005 - Reg.

संदर्भ आपके ऑनलाइन आरटीआई आवेदन पंजीकरण संख्या के साथ किया जाता है /
Reference is made to your Online RTI application bearing Registration No. AAICH/R/E/25/00109 dt. 10.08.2025, on the subject.

इस संबंध में, इस कार्यालय से संबंधित जानकारी नीचे दी गई है / In this connection, information pertaining to Trichy Intl Airport is furnished below:

Sl. No.	मांगी गई जानकारी / Information sought	प्रदान की गई जानकारी / Information provided
1	Please sent one copy or details of TRA of southern region airports?	The copy of tiruchirappalli Airport fire Dept. TRA is attached.
2	Please sent the details how many airports in southern region maintaining as per TRA? It is observed some of the airports manpower are reducing or increasing accordingly to availability of manpower and overtime purpose, please sent the said list of airports.	Tiruchirappalli Airport fire Dept., is maintaining manpower according to the TRA
3	Please sent details CFTs speed regarding. Normal time CFT can running how much km speed and emergency time speed and fire drill and other drill time can run how much speed pls sent details?	Refer the CAR section 4 series "B" part 1 clause 9:2:40 of DGCA requirements. Tiruchirappalli ARFF complies with the above.

सादर / Yours Sincerely,

(एस ज्ञानेश्वर राव/ S Ganeswara Rao)
विमानपत्तन निदेशक एवं लोक सूचना अधिकारी
Airport Director & Public Information Officer

Encl : As stated

प्रतिलिपि: पी.आई.ओ- द.क्ष, भा.वि.प्रा., चेन्नई - 600 027 - कृपया जानकारी के लिए अग्रेषित किया गया
Copy forwarded for kind information to: PIO-SR, A.A.I, RHQ-SR, Chennai - 600 027.

आंतरिक : एस.एम.(आईटी) - भा.वि.प्रा वेब पोर्टल* में अपलोड करने के लिए।

Internal : SM(IT) - to upload in AAI Web portal* for compliance under Section 4 of RTI Act.
*<https://www.aai.aero/en/rti/appeals-and-responses/Southern%20Region>

Annex - 4

	AIRPORTS AUTHORITY OF INDIA TIRUCHIRAPALLI INTERNATIONAL AIRPORT	
ARFF TASK RESOURCE ANALYSIS		
Doc No.: AAI/TRZ /FIRE/TRA/2024		Version: 01

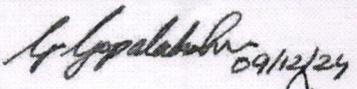
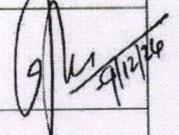
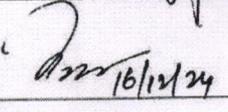
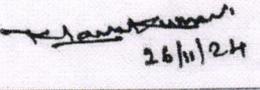
Airports Authority of India
Tiruchirapalli International Airport
TASK RESOURCE ANALYSIS (TRA)



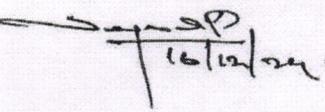
RESCUE AND FIRE FIGHTING SERVICES

Doc. No.: AAI/TRZ/FIRE/TRA/2024

Prepared by Shri. Babusundar S, AM (FS) S. Babusundar S 26/11/24

S. No.	Committee Members	Signature
1.	Shri. G Gopalakrishnan Officiating Airport Director	 09/12/24
2.	Shri. G L Lallu, JGM (ATM) HOD (ATM)	 09/12/24
3.	Shri. Rajan, JGM (FS) Regional Fire Officer, SR.	 16/12/24
4.	Shri. Lavakumar K, SM (FS) HOD (FS)	 26/11/24

APPROVED BY: RED-SR

 16/12/24



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1. Introduction:

The effectiveness of any firefighting system depends on quality of equipment and competency & adequacy of manpower deployed for the purpose. Para 9.2 of CAR Section 4, Series B, Part-I specifies the requirements for ARFF equipment and Para 9.2.45 recommends the aerodrome operators to carry out task resource analysis for determining the minimum number of firefighting personnel & minimum number of ARFFS vehicles and equipment required for the delivery of the extinguishing agents at the required discharge rate for the specified ICAO RFFS category of the airport.

Aerodrome Advisory Circular AD AC 03 of 2017 on the subject 'MANPOWER REQUIREMENT FOR AERODROME RESCUE AND FIRE FIGHTING OPERATION' provides guidance to the aerodrome operators regarding methodology to be adopted for carrying out the task resource analysis for ascertaining the minimum manpower requirements for aerodrome rescue and fire fighting. The circular on its own does not change, create, amend or permit deviations from regulatory requirements, nor does it establish minimum standards.

The minimum requirements should be established including minimum number of RFFS vehicles and equipment required for the delivery of the extinguishing agents at the required discharge rate for the specified ICAO RFFS category of the airport. It is also to be documented in aerodrome manual.

ICAO Annex 14 Volume 1 Para 9.2.41 Recommendation states 'In determining the minimum number of rescue and fire-fighting personnel required, a task-resource analysis should be completed, and the level of staffing documented in the Aerodrome Manual'. ICAO Doc 9137-AN/898 Airport Services Manual Part 1 Rescue and Fire Fighting provides detailed guidance in this regard.

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2. Purpose:

This document describes the Task and Resource Analysis (TRA) to establish justification as to the minimum number of qualified/competent personnel required to deliver an effective Airport Rescue and Firefighting Service (ARFFS) to deal with an aircraft incident/accident at Trichy International Airport.

This does not include manpower performing duty in building Fire Control Room (FCR).

Based on a qualitative risk approach, which focuses upon probable and credible worst-case scenarios, a task and resource analysis seeks to identify the minimum number of personnel required to undertake identified tasks in real time before supporting external services are able to effectively assist ARFFS at site.

Consideration is given to the types of aircraft using the aerodrome, vehicle(s) and the need for personnel to use self-contained breathing apparatus, hand lines, ladders and other rescue and firefighting equipment provided at the aerodrome associated with aircraft rescue and firefighting operations.

Human Factors:

This Task Resource Analysis (TRA) observes human factor principles to obtain optimum response by all existing agencies participating in emergency operations. The principles include the effects of human performance for example workload, capabilities, functions, decision aids, environmental constraints, team versus individual performance and training effectiveness.

TRA has taken into account health and safety, and fatigue issues as well as the regulatory requirements.

Qualitative Approach:

The task analysis, including a workload assessment, aims to identify the effectiveness of the current staffing level and to identify the level of improvement resulting from additional staffing, if any. This assessment will generally be used to support the conclusions of the qualitative analysis by examining the risks to passengers and aircrew from aircraft accidents at the airport.

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3. Task Analysis/Risk Assessment:

A Task Analysis primarily consists of a qualitative analysis of the ARFFS response to a realistic, worst case, aircraft accident scenario. The purpose is to review the current and future staffing levels of the ARFFS deployed at Trichy International Airport. The qualitative analysis is supported by a quantitative risk assessment to estimate the reduction in risk. This risk assessment is related to the reduction in risk to passengers and aircrew from deploying additional personnel. One of the most important elements is to assess the impact of any critical tasks or pinch points identified by the qualitative analysis.

A task and resource analysis (TRA) will assist aerodrome operator determine the tasks required of the RFFS personnel according to role(s). A TRA primarily consist of an analysis of the RFFS response to realistic worst-case aircraft accident scenarios.

A TRA seeks to identify the minimum number of personnel required to undertake identified tasks in real-time before supporting external services are able to effectively assist the airport RFFS.

The objective of a TRA is to have available sufficient staff at all responsibility levels to ensure that:

- I. The RFFS is capable of achieving the Principal Objectives.
- II. All vehicles and equipment can be operated effectively and safely.
- III. Continuous agent application at the appropriate rate(s) can be fully maintained.
- IV. Sufficient supervisory grades can focus on the 'hot zone'; provide survivable conditions for occupants and to initiate the rescue phase of the response.
- V. The RFFS elements of the aerodrome emergency plan can be effectively achieved.
- VI. Any limitations of the response can be identified.

4. Resourcing (Staffing):

The determination of the minimum staffing required for the category of operation is a fundamental requirement to ensure the RFFS is capable of meeting and discharging its responsibilities both within the initial response and as determined in the emergency plan.



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Aerodrome Specific Information:

Every airport is unique in that the location, environment, runway and taxiway configuration, aircraft movements, airport infrastructure and boundary etc. may present specific additional risk; hence it is imperative to consider these factors in Task and Resource Analysis.

Description of aerodrome(s) including the number of runways	
1	Name of the Airport Trichy International Airport.
	The geographical co-ordinates of the Aerodrome Reference point ARP (WGS-84): 10° 45'56.12"N 078° 42'54.16"E
	Aerodrome Code 4C
	Runway a) Single Runway, b) Its nomenclature is (09-27) c) Geographical condition Plane surface.
2	Broadcasted ARFFS Categories (Aeronautical Publication) Information CAT-VII
3	Number of Fire Stations/Grid Location 01 Grid Location: D7
4	Response Time Criteria a) Two minutes and not exceeding three minutes to the end of each runway, as well as to any other part of the movement area in optimum visibility and surface conditions. b) Two PDPs defined at Airport for reducing Response Time.
5	Critical Aircraft a. Current b. Future Airbus A321 Not Confirmed
6	Operational Hours 24 Hours (Three shifts)
7	Current ARFF Structure Available strength-51 Required/Sanction strength-67

8	ARFFS Qualifications/Competence (Training Programme and Facilities)		
	Designation	No.	Remarks
8a	Senior Manager	01	All are qualified, Completed minimum basic fire fighting training at FTC/FSTC, Refresher courses, ARC-I, JFO and Officer courses.
8b	Assistant Manager	04	
8c	Sr. Superintendent/Supdt.	14	
8d	Supervisor/ Sr. Asst.	22	
8e	Assistant/ Jr. Asst.	10	
9	Extraneous Duties (To include Domestic and First Aid Response)		NIL
10	Communications and ARFFS Alerting system including Extraneous Duties		The following communication system are available at fire station: a) RT Base Set b) Walkie-Talkie c) Intercom/landline d) Alert systems are: Crash bell, Siren and PA system.
11	Appliances and Extinguishing Agents available		ACFT – 04 Ambulance – 03 Overhead Tank – 50,000 litres Static Tank – 1,00,000 litres AFFF, DCP, CO ₂ (portable Extinguisher) & CAF.
12	Specialist Equipment- Fast Rescue Craft, Hovercraft, Water Carrier, Hose Layer, Extending Boom Technology, etc.		Not Applicable
13	First Aid- Role Responsibility.		Fire Personal are trained in First Aid Training. Maintain First Aid Room.
14	Medical Facilities- Role Responsibility		First Aid room maintaining at Fire Section & Emergency Medical Centre available at NITB.
15	Pre-Determined Attendance: Local Authority Services- Police, Fire and Ambulance, etc.		Available on call. All external responding agencies will report at Rendezvous point designated near Operational Gate.

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*Note: As per instructions issued vide CHQ Circular No. AAI/CHQ/FS-42/36-43 dated 01/10/2021 on the subject 'Training Programme for Airport Doctor at Airport-reg.' Issued by GM(FS), all doctors detailed at the airport terminal clinic undergo formal and structured familiarization training for their roles and responsibilities during an aircraft accident as incorporated in ICAO Doc 9137 Part-7 (Airport Emergency Planning).

5. Inventory of all vehicles, equipment, and extinguishing agents available at ARFFS is as follows:

S. No.	Equipment/PPE	Quantity	Remark
1	ACFT	04	Commissioned – 02 Standby - 02
2	Ambulance	03	As per norms.
3	BA compressor	01	As per norms.
4	BA Set	10+4	As per norms.
5	Power driven saw	03	Available in CFTs
6	Hydraulic unit (including spreader/cutter)	03	Available in CFTs
7	Inflatable Lighting Tower	02	Available in CFTs
8	Ladder	11	Available in CFTs & Spare
9	Oxygen Cylinder in Ambulance	09	Available in Ambulance
10	Stretchers	12+42	Available in Ambulance and Store
11	Lifting bag	04	Available in CFT

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Incident Task Analysis includes:

- a. Mobilisation
- b. Deployment to Scene
- c. Scene Management
- d. Fire Fighting
- e. Suppression and Extinguishment
- f. Application of Complementary Agent(s)
- g. Post Fire Security/Control
- h. Personnel Protective Equipment
- i. Rescue Team/s
- j. Aircraft Evacuation and
- k. Extinguishing Agent Replenishment.

6. PHASE 1: AIM, OBJECTIVE, TASK IDENTIFICATION

6.1 Aim

To maintain a dedicated ARFFS of qualified and competent fire and rescue personnel equipped with vehicles to make an immediate response to an aircraft incident /accident on or in the immediate vicinity of the airport within the specified response time criteria.

6.2. Principal Objective of the Rescue and Fire Fighting Service

The principal objective of the rescue and firefighting service is to save lives in the event of an aircraft accident or incident occurring at, or in the immediate vicinity of, an aerodrome. The rescue and firefighting service is provided to create and maintain survivable conditions, to provide egress routes for occupants and to initiate the rescue of those occupants unable to make their escape without direct aid. The rescue may require the use of equipment and personnel other than those assessed primarily for rescue and firefighting purposes.

The most important factors bearing on rescue in a survivable aircraft accident are: the training received the effectiveness of the equipment, the speed with which personnel designated for rescue and firefighting purposes can be put into use.

6.3. Tasks:

- a. Initiate aerodrome emergency plan
- b. Meet the required response time.
- c. Select appropriate route and communications
- d. Position appliances in optimum positions and operate effectively
- e. Initiate incident command system
- f. Suppress/extinguish any fire
- g. Protect escape slides and exit routes.
- h. Assist in the self-evacuation of the aircraft.
- i. If appropriate, extinguish any internal fire
- j. If required, ventilate aircraft to create survivable conditions
- k. Rescue trapped personnel.
- l. Maintain post fire security/control.
- m. Preserve evidence.
- n. Any other instructions from On-Scene-Commander.

7. PHASE 2: IDENTIFICATION OF TYPE OF AIRCRAFT FOR TRA

The details are as follows:

FLIGHT MOVEMENTS (Data provided by ATC)

S. No	Type of Aircraft	Weekly Movement in September 2024 (1 st Week)	Weekly Movement in October 2024 (1 st Week)	Weekly Movement in November 2024 (1 st Week)
1	A321	14	10	14

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Description of Aircraft for TRA:

1	Identify the types of aircraft commonly in use at the airport	Airbus A321 neo
2	Aircraft Group	Airbus single aisle
	Fuselage Length	44.51 M
	Fuselage Width	3.95 M
	Height	11.76 M
3	Critical Area	1511 SQ. M
4	Number of Seats	180-220 seats
5	Number of Emergency Exits	10
6	Number of Hatches	02
7	Number Aisles	01
8	Number of Engines	02
9	Fuel Capacity	32,940 Ltrs.

8. Phase 3: Scenario Development:

The following realistic feasible accident scenario that may occur at the Trichy International Airport is identified to achievable statistical analysis.

Realistic and Feasible-Case Scenario:

Committee has discussed the following points:

- A) No aircraft specific casualty figures are available at Trichy International Airport.
- B) The accident/incident history found in India & abroad of the identified aircraft suggests that maximum cause of accident/incident, full emergency have occurred due to landing gear malfunction.
- C) In India a similar incident has occurred where a pilot error resulted into heavy landing with Tail strike at Delhi Airport in 2017.
- D) However, no life loss was ever reported and no details of Priority-I, II or III is available for the incidents involving this aircraft.
- E) Aircraft design takes into account the requirement that all persons on board can be evacuated via 50% of the emergency exits within 90 seconds.

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- F) Aircraft operations takes into account the fact that at least all crew members can man 50% of the emergency exits to assist in evacuation.
- G) Requirement for ARFF services includes securing egress routes for passengers.

So, we may create the accident/incident scenario during landing time by same cause. The scenario identified is a probable accident that would test a high nos. of factor in airport rescue and firefighting services.

The Airbus A321 is a turbojet aircraft. Its typical seating configuration can be 180-220. The aircraft typically has 10 exits. The aircraft has 2 engines (01 each side) with fuel capacity 32, 940 litres (approx.).

As stated above, no aircraft specific casualty figures are available. Therefore, considering the percentage of estimated casualties as mentioned in Table 3.1 of Airport Service Manual, DOC9137 Part 7, and total number of casualties for the given aircraft accident carrying on an average 220 persons on board may be taken as follows.

- 20 % Casualties Priority I – Immediate care =33 casualties.
- 30 % Casualties Priority II – Delayed care = 50 casualties.
- 50 % Casualties Priority III – Minor Care = 82 casualties.

These figures are based on the assumption that the maximum number of surviving casualties at an aircraft accident occurring on or in the vicinity of an airport is estimated to be about 75 per cent of the aircraft occupants.

The above information is to be built into a complete accident scenario that can be analysed by TRA Team during tabletop meetings.

9. PHASE 4-Accident Location:

Accident Location: Grid Location: D4, Runway 09.

The location of the accident scenario determined is the farthest Runway in addition to being a most likely location for the accident scenario.

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9. Phase 5: Development of Accident Scenario

Aircraft accident scenario has been designed with the combination of accident type, aircraft identified, and location identified above.

Accordingly, the committee decided the following case scenario:

Accident Type: Aircraft Overrun into Runway 27 – Runway End Safety Area (RESA).

Aircraft Identified: Airbus 321.

The A321neo is the longest-fuselage member of Airbus, single-aisle A320 Family, comfortably seating 180 to 220 passengers in a typical two-class interior layout, and as many as 244 in a higher-density arrangement. The aircraft typically has 5 exits on both sides.

During the take-off phase the aircraft suffers a fire in the number 1 engine and the pilot decides to abort the take-off. During this phase, the fire develops rapidly and impinges on the fuselage. The aircraft overruns the runway and comes to rest in the RESA area and hits the Localizer antenna. Flight Deck Crew orders an evacuation.

The ARFF services are informed by ATC and respond accordingly and the aerodrome emergency procedures are activated.

9. Phase 6: Analysis

The main tasks deemed necessary are listed above. In Task-Resource Analysis the listed tasks are mentioned with an estimation of when these would be implemented, how long it would take to achieve and minimum nos. Of personnel required for each task.

The task and resource analysis also identify the optimum time when additional resources will be available to support/augment and/or replace resources supplied by ARFF services (Aerodrome Emergency plan). It can also provide vital evidence to support the level of ARFF vehicles and equipment.

- a) **Response Time Criteria:** Two minutes and not exceeding three minutes to the end of each runway, as well as to any other part of the movement area, in optimum conditions of visibility and surface conditions.

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Target area: Runway 09 & 27 Beginning:

Sl. No.	Route	Minimum Response Time
1	Fire station-R/W 27 RESA (Grid location: D4)	100 seconds approx.
2	Fire station- R/W 09 RESA (Grid location: C9)	80 seconds approx.

b) Route to the accident site (on or off paved surfaces):

1. Fire station approach road (paved) via Runway (paved)
2. Fire station approach road (paved) via Taxiway Echo-Bravo-Runway (paved)

c) Terrain: Levelled surface.

d) Crossing procedures for active runway: Permission is required for Runway entry.

e) Surface conditions: Unpaved surface for approaching to Undershoot area of Runway 09 & 27 and both RESA.

f) Communications: RT communication/WT/hotline is available between ARFF & ATC, VHF.

g) Supplementary water supplies available at Fire Station:

Static tank : 1,00,000 L
Overhead tank : 50,000 L

h) Daylight or darkness: During adverse weather and visibility conditions, the response time is likely to be affected. However being in PDP, safety vehicles may achieve the response time for such situations.

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10. Task and resource:

- ❖ Shift I/C is identified as SIC.
- ❖ Fire Control Room official is identified as FCR.
- ❖ Fire Watch Tower is identified as FWT
- ❖ ACFT's are identified as CFT A & B.
- ❖ Ambulances are identified as M1, M2 & M3.
- ❖ Mobile Command Post is identified as MCP.
- ❖ Minimum no. of personnel in each ACFT's are identified:
 - CFT A – A1, A2, A3, A4
 - CFT B – B1, B2, B3, B4
- ❖ ACFT's: ACFT's are carrying Water 16000 L, AFFF 2100 L and 300 Kgs. DCP as complementary agents.
- ❖ Minimum no. of personnel in the ambulances are identified:
 - One official is deployed on each ambulance and identified as M1, M2 & M3.
- ❖ Ambulance is equipped with Oxygen cylinders and First Aid Boxes.
- ❖ Minimum no. of RFFS personnel for exercise is 15.

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Response to Emergencies

On receipt of information through ATC, the Aerodrome Emergency Procedures were activated by ARFF.

As per above scenario, during emergencies 02 CFTs need to respond. The positioning of CFTs as per the task given is as under:

- CFT A - CFT B – Firefighting and also support passenger escaping through doors.
(Position depends on wind direction)
- M1, M2 & M3 – Support passenger escaping/ rescue as per requirement and instigate triage set up.
- SIC – watch commander coordinates/supports Fire Crew/ Instigate Command Post.
- Station In charge – is identified as OC (On scene commander) and assumes charge from SIC on reaching at crash site.



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11. Time activity

Time	Tasks	Resources	Comments
00:00:00	Call received from ATC to FCR: Aircraft Airbus A321 during the take-off, fire occurred in the number 1 engine and the pilot decides to abort the take-off. Aircraft overrun into Runway 27 RESA. Grid location : D4, POB: 220	ATC, FCR/FWT	Achieved
00:00:05	ARFF personnel mobilized by operating Crash Bell by FCR with message relayed on PA System and RT simultaneously.	FCR/FWT	Achieved
00:00:15	All crew mount CFTs and mobilized.	SIC,A1, A2, A3, A4, B1, B2, B3, B4, M1, M2, M3, MCP	Achieved
	Personnel start Donning appropriate PPE.	A3, A4 and B3, B4	Achieved
	Supervisor(s) utilize appropriate communications (RTF): discreet frequency, ATC, local authority, etc.	SIC,A1, A2, A3, A4, B1, B2, B3, B4, M1, M2, M3	Achieved
00:00:20	Route selected and all Appliances mobilized to RWY-27 RESA.	SIC	Achieved Note: Aircraft may have already initiated evacuation
00:00:22	ATC/TM informs other outside agencies (as per AEP) & liaises with rendezvous point officer (RAC) with their vehicle.	ATC/TM	Achieved



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Time	Tasks	Resources	Comments
00:01:45	Both CFTS are in position and operate roof monitor to start firefighting, cooling of fuselage and protection of rescue path.	A2 & B2	Achieved
00:01:50	All Ambulances also reached at site following CFTS and instructed by SIC to assist in self-evacuation of passengers.	SIC, M1, M2, M3	Achieved
00:01:53	MCP reached at site. SIC instructs to activate Command Post.	SIC, MCP	Achieved
00:01:55	A3 & B3 lay out and operates handlines for protection of rescue path.	A3 & B3	Achieved
00:01:56	B4 lay out Complementary agent (DCP line) and keep standby. SIC instructs them to assist in self-evacuation of passengers.	B4	Achieved
00:01:57	A4 lay out another side-line to tackle interior fire. Further usage of rescue tools for passenger extraction.	A4	Achieved
00:02:15	Command Post established by MCP and SIC takes position at Command Post.	MCP, SIC	Achieved
00:02:20	All external fires extinguished and reported to SIC. A3 & B3 leave side-line as standby.	SIC, A1, A2, A3 & B1, B2, B3	Achieved
00:02:25	SIC instructs CFTs to remain as standby.	SIC, A2, B2	Achieved
00:02:25	SIC instructs A3, A4 and B3, B4 to prepare for entry in aircraft with PPE &with side-line.	SIC, A3, A4, B3 & B4	Achieved



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00:03:05	Airline staff reports at site and contact SIC at Command Post.	Airline staff	Achieved
00:03:05	All Priority- III casualties (82 nos.) self-evacuated & handed over to Airline staff for transportation to Terminal building and SIC instruct to setup Triage Area.	A1 & B1	Achieved (considering to evacuation of passengers (Priority-III) from site by Airline staff)
00:03:15	ARFF crew enters aircraft for rescue in PPE with side lines. SIC instructs M1, M2 & M3 to assist on ground.	A3, A4, B3, B4 M1, M2, M3	Achieved
00:03:25	ARFF crew ensure proper ventilation, start rescue of Priority- I & II casualties from the aircraft & send to Triage Area assisted by Airline crew.	A3, A4, B3, B4 and M1, M2 M3, Airline crew	Achieved (with the assistance of Airline crew)
00:04:25	Station In-charge (FS) reports at site and take charge from SIC. SIC briefs OC of ground situation, task achieved and tasks in progress. OC takes position at Command Post. Airline staff also report to OC at Command Post.	OC, SIC, Airline staff	Achieved
00:04:35	OC instructs SIC to set up Staging Area (for external agencies' personnel and vehicle responding at site) & Transport Area (for evacuating the Priority-I & II casualties from the site) with the help of A1 & B1.	SIC, A1 & B1	Achieved
00:04:45	Airport Security Team reported at site to OC and cordoned-off the affected	Airport Security/CISF	Achieved



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	area (Hot Zone inner cordon) to preserve the evidence i.e., documents, electronics evidence & Forensic evidence.		
00:05:15	SIC informs to OC that Staging Area & Transport Area are setup and deployed A1 & B1 resp. to supervise at these locations. OC instructs SIC to take charge at Triage Area till the arrival of medical team at site.	OC, SIC, A1 & B1	Achieved
00:05:20	SIC takes charge at Triage Area for tagging and medical care. Inform to OC of the same. OC instructs airline staff to report at Triage Area to assist in SIC.	OC, SIC Airline staff	Achieved (with the assistance of Airline crew)
00:05:30	OC liaises with ATC and Rendezvous Point Officer for responding external agencies to ensure appropriate resources are brought forward to the accident site.	OC	Achieved
00:05:45	External Agencies arrived and reported to Rendezvous Point and same message conveyed to OC. OC instructs RAC that all External Emergency Services which reported at Rendezvous Point be forwarded to Staging Area.	OC, Airport Security (RAC)	Achieved
00:07:05	External Emergency Services reaches at the Staging Area	Follow me staff, Airport Security	Achieved



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	with equipment to support rescue operations. A1 informs their arrival to OC.	(RAC),A1and external agencies like Local Police, State Fire Service, Medical team with Ambulance etc.	
00:07:10	OC Instructs A1 to send the medical staff to Triage Area and report to SIC, Ambulance to Transport Area and report to B1 and State Fire Service for assisting in rescue operations under direct control of OC at site. Other remaining agencies kept Standby at Staging Area. Local Police is instructed to provide outer cordon (Cold Zone). All In charges of respective agencies report at Command Post to OC.	OC, SIC, A1, B1, Medical team with Ambulance, State Fire Service, Police, etc.	Achieved
00:07:20	Medical team take charge at triage Area from SIC, provide medical care at site and start loading Priority-1 casualties into the ambulance for transportation to hospital. State Fire Service assist in rescue operations at site. SIC report to OC for assistance at Command Post.	Medical team with Ambulance State Fire Service SIC	Achieved
00:07:20	All Priority- II casualties (50 nos.) are evacuated to Triage Area for Triage and medical care. Reported to OC.	A3, A4, B3, B4 and M1, M2 M3, Airline crew	Achieved



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Time	Tasks	Resources	Comments
00:09:50	All Priority- III casualties (82 nos.) are evacuated to Triage Area for Triage and medical care. Reported to OC.	Airline crew	Achieved
00:10:30	All Priority- II casualties are loaded and dispatched to hospital. Reported to OC.	B1, Medical team with Ambulance	Achieved
00:12:15	All Priority- III casualties are loaded and dispatched to hospital. Reported to OC.	Medical team with Ambulance	Achieved
00:12:30	OC instructs Airline staff to obtain a head count of survivors and found all passengers & crew has rescued from Aircraft.	OC, Airline staff	Achieved
00:15:00	Airline staff provides headcount and confirms all passengers and crew have been rescued.	OC, Airline staff	Achieved
00:15:30	OC consults with SIC, A1 & B1 Airline, Security and all In charges of other external agencies responding at site for further action required at site, if any. Gets feedback on the response provided at site.	OC, SIC, A1, B1, Medical team with Ambulance, State Fire Service, Police, Airport Security (RAC) etc.	Achieved
00:17:30	OC report to CMC (Crises management centre) regarding completion of all Rescue and Fire Fighting Tasks. Recommends for withdrawals of ARFF Personnel and external agencies with site handed over to security.	OC, CMC	Achieved



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Time	Tasks	Resources	Comments
00:19:00	CMC approves withdrawal from the site to OC.	OC, CMC	Achieved
00:19:30	OC declares ATC, ARFF crew and other agencies that emergency is over. Permit all agencies to return back from the site. Hands over site to security. Return back with ARFF crew to the Fire Station to replenish and restore category.	OC, SIC, A1, B1, Medical team, Ambulance, State Fire Service, Police, Airport Security (RAC) etc.	Achieved



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12. ARFF Activity Chart:

Time	CFT A & B								AMBULANCES			MCP		
	OC	SIC	A1	A2	A3	A4	B1	B2	B3	B4	M1	M2	M3	MCP
00:00:00														
00:00:05														
00:00:15		SIC	A1	A2	A3	A4	B1	B2	B3	B4	M1	M2	M3	MCP
00:00:20		SIC												
00:01:45				A2				B2						
00:01:50		SIC									M1	M2	M3	
00:01:55					A3				B3					
00:01:56										B4				
00:01:57						A4								
00:02:15		SIC												MCP
00:02:20		SIC												
00:02:20		SIC	A1	A2	A3		B1	B2	B3					
00:02:25		SIC												
00:02:25		SIC			A3	A4			B3	B4				
00:03:05			A1				B1							
00:03:15					A3	A4			B3	B4	M1	M2	M3	
00:03:25					A3	A4			B3	B4	M1	M2	M3	
00:04:25	OC	SIC												
00:04:35		SIC	A1				B1							
00:05:15	OC	SIC	A1				B1							
00:05:20	OC	SIC												
00:05:30	OC													
00:05:45	OC													
00:07:05														
00:07:10	OC	SIC	A1				B1							
00:07:20		SIC			A3	A4			B3	B4	M1	M2	M3	
00:09:50														
00:10:30							B1							
00:12:15														
00:12:30	OC													
00:15:00	OC													
00:15:00														
00:15:30	OC	SIC	A1				B1							
00:17:30	OC													
00:19:00	OC													
00:19:30	OC	SIC	A1				B1							

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13. Conclusion: Analysis of minimum manpower requirements for carrying out firefighting and rescue operations:

Aerodrome Category-VII			
Sl. No.	Details of requirement	No. of person	Remarks
a.	Drivers for CFTs	02	CFT1 & CFT2
b.	Firefighting & Rescue	08 (CFT crew) + 03 (Ambulance crew) = 11	Evacuation from one side emergency exits only. CFT and Ambulance crew utilized.
c.	Shift In charge	01	Moves in 1 st turnout vehicle and takes charge at the site till the arrival of Operational Commander.
d.	Fire Station In charge	01	Acts as Operational Commander and takes charge at the site from Shift In charge.

On the basis of above analysis and considering the concern documents the following guidelines shall be considered by all aerodrome operators:

- a) The minimum number of RFFS vehicles and equipment required for the delivery of the extinguishing agents at the required discharge rate is to be established in accordance with CAR sec 4, Series B Part I Table 9-2 and para 9.2.41.
- b) Minimum manpower requirements should be sustained for operation:

Required Minimum Manpower as per TRA:

S. No.	Units/Appliances	Manning in nos.
1	Shift I/C	01
2	Fire Control Room	01
3	Fire Watch Tower	01
4	Crash Fire Tender (02)	08 (02x04 nos.)
5	Ambulances (03)	03 (01 each)
6	Mobile Command Post	01
	Total	15 nos.

Minimum Manpower required per shift= 15 nos.