

Introduction

1. This procedure provides a guideline for personnel to utilise prior to, during or following an entrapment or burnover at a bushfire. It is vital personnel understand both entrapment and burnover situations including how they can be prevented and how to respond when they occur.

- Entrapment:

“A situation in which individuals are exposed to life threatening or potentially life threatening conditions from which they cannot safely remove themselves.”

- Burnover:

“A section of fire that overruns personnel and/or equipment.”

Further information is provided at Directive 3.5 – Bushfires and SOP 3.5.10 – Crew Safety at Bushfires.

[Directive 3.5 – Bushfires](#)

[SOP 3.5.10 – Crew Safety at Bushfires](#)

Procedures

2. **Prevention.** The application of LACES and safety practices in accordance with SOP 3.5.10 – Crew Safety at Bushfires assists in the prevention of burnover and entrapment situations. LACES enables personnel to minimise the risk of becoming entrapped through:

- Maintain situational awareness;
- Maintain communications; and
- Monitor fire behavior and crew safety.

3. **Burnover and Entrapment Procedure – Appliance Crew.** This procedure applies to all appliances and crew undertaking both offensive, defensive and safeguarding operations at bushfires.

Action	Description
Identifying Burnover and Entrapment situations	
Establish and maintain LACES	All personnel to maintain LACES as per SOP 3.5.10 – Crew Safety at Bushfires.
Situational Awareness	<p>Assess forecast information;</p> <p>Monitor for changes in fire behaviour associated with changes in topography, weather and fuel, specific indicators include.</p> <ul style="list-style-type: none"> • Change in wind speed and direction. • Change in smoke direction. • Erratic fire behaviour and change in direction. • Atmospheric instability (Smoke plume behaviour).

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Situation reporting	<p>Crew leaders should ensure they;</p> <ul style="list-style-type: none"> • Report all changes in fire behaviour to IC/IMT • Provide timely and accurate situation reports IC/IMT • Monitor for situation reports
When you identify the turnover or entrapment situation:	
Situational Awareness	<p>Crew leaders should ensure they;</p> <ul style="list-style-type: none"> • Inform all crew of the situation. • Select (from LACES) the safest escape route if possible. • Monitor safety of the crew. • Monitor situation and fire behaviour. <p>Crew Members should ensure they;</p> <ul style="list-style-type: none"> • Respond to instructions from crew leader. • Report changes in situation to the crew leader.
Cease Operations	<p>Crew Leader is to direct that;</p> <ul style="list-style-type: none"> • Branch operators close down all branches and place them on the ground. • All crew return to the appliance. • Available crew close down and remove the delivery lines at the pump (except for personal protection lines). • Crew leader is to conduct a head count to ensure all the crew are present and mount the appliance.
Move to Safety (if possible)	If possible move the appliance and crew away from danger to a safety zone or escape route.
Activate AVL Emergency	Activate the AVL Emergency Function by pressing the AVL Emergency and Distress Button (Press and hold for 4 seconds) .
Emergency Message	<p>Crew leader is to (or may delegate);</p> <ul style="list-style-type: none"> • Transmit an Emergency Message on the relevant channel (sector or control). <ul style="list-style-type: none"> ○ Details to be transmitted; <ul style="list-style-type: none"> ▪ Appliance. ▪ Name and rank. ▪ Number of crew. ▪ SITREP. ▪ Location.

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As the fire approaches:	
Prepare the Appliance	<p><u>If an escape route is not available:</u></p> <ul style="list-style-type: none"> • If possible move the appliance to the nearest safety zone • If no safety zone is accessible, park the vehicle on a burnt/cleared area in a position that affords as much protection as possible for the crew (e.g. rear of the vehicle facing the fire front). • Parking as near as is practicable on level ground. <p><u>Once positioned safely:</u></p> <ul style="list-style-type: none"> • Leave the pump running at a speed that allows the protective sprays to operate. • Close all doors, windows, air vents and leave the engine running on fast idle, turn air conditioner to recirculate and deploy curtains (if available). <p>Turn on sirens, beacons and headlights.</p>
Prepare the Crew	<p><u>All crew will;</u></p> <ul style="list-style-type: none"> • Remove any loose non-essential / flammable material from dashboard and cabin. • Take cover in the cabin. • Remain in full PPE (helmet may be removed if necessary), do not hose down crew. • Drink potable water to minimise the risk of dehydration. • Don in cab air. • Locate hand held radio. • Deploy burn over blanket. <p>STAY INSIDE THE VEHICLE</p>
As the fire impacts the appliance:	
Protect the Crew and Appliance	<ul style="list-style-type: none"> • On imminent fire contact, operate protective sprays. (Ensure the spray pattern envelopes the cab and if possible protects the pump from turnover temperatures which may exceed the stall temperature of the pump motor.) • Wait for the fire front to pass. Immediately after the fire front has passed, account for all the crew and check the vehicle for damage. <p>Note: Do not hose down crew members with water prior to the fire front passing as the conduction of heat through PPC/clothing may induce steam burns.</p>

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What to expect	<p><u>Cabin Internal Temperature Rise;</u></p> <ul style="list-style-type: none"> As the fire front approaches, the intensity of the heat will increase along with the amount of smoke and embers. Radiated heat will transfer directly to inside the cabin. <p><u>Cabin Infiltrated by Smoke;</u></p> <ul style="list-style-type: none"> Smoke gradually ingresses the vehicle and fumes will be released from the interior of the appliance. Stay as close to the floor as possible to minimize smoke inhalation. <p><u>Appliance External Fittings Catch Alight;</u></p> <ul style="list-style-type: none"> Tyres and external plastic body parts may catch alight. <p><u>Fuel Tanks;</u></p> <ul style="list-style-type: none"> Fuel tanks are very unlikely to explode. Fuel Jerry Cans and drip torches not fitted with anti-explosive mesh may be at risk.
After the fire has passed	
Post Burn over procedures	<p><u>Determine it is safe to exit the appliance;</u></p> <ul style="list-style-type: none"> Visual observation. Check temperature of glass (gloved hand). Exiting the appliance. Crew leader to instruct crew to exit the appliance, meet at the front. Take hand held radio. Keeping blankets in place carefully exit appliance (Note: blankets may create trip hazard, also be aware of open doors as another hazard). Crew leader conducts head count and then instructs crew to move to a safe location / arranges for first aid. <p><u>Immediate Actions after burnover</u></p> <ul style="list-style-type: none"> Check crew for injuries – Provide or arrange for first aid for any injuries or burns. Inspect appliance – Ascertain if it is functional to move to safer ground. Provide a SITREP to the sector commander/incident controller. <p><u>Further actions after a burnover</u></p> <ul style="list-style-type: none"> Attach out of service tag to steering wheel of the vehicle, the vehicle is deemed unsafe till inspected by a qualified technician. Return in cab air units and burn over blankets to the vehicle. (Required for investigation). Record incident (use the DFES safety reporting system, including your personal incident diary).
What to Expect	<p>Post incident involving entrapment or burn over an immediate investigation will occur by the appointed person.</p>

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4. **Burnover and Entrapment Procedure – Sector/Division Commanders.** Incident Controller or Operations Officer to undertake these tasks if no Sector or Divisional Commanders appointed.

Action	Description
Ensuring fireline safety and mobility	
Briefings	Briefings are to be conducted using a SMEACS format prior to, during and post crews working on a sector.
Situational awareness	<p><u>Sector Commanders must maintain awareness of;</u></p> <ul style="list-style-type: none"> • Tasking and location of crews. • Appliance locations. • Current and forecasted weather. • Current and predicted fire behaviour. • Potential fireline hazards (Hazardous trees, terrain, accessibility, etc). • Strategies and tactics of other sectors.
Turn around areas	Turn around areas should be constructed to accommodate the largest appliance expected to use a fire control line. The positioning of turn around areas will be determined by the potential fire behavior and condition of the fire line. Vehicles must be able to perform a three point turn. Therefore the turnaround area must be at least the length and three times the width of the largest appliance at the incident.
Passing areas	A passing area is intended to run parallel to the fire control line and its purpose is to allow an appliance to pull off the fire control line to let other appliances pass. As a minimum it should be as wide as and twice the length of the largest appliance being utilised at the bushfire.
Safety zones	As a rule of thumb, four times the flame height is considered the minimum acceptable comfortable distance. This minimum acceptable comfortable distance applies when determining firefighter safety zones and refuge areas.
On notification	
On receipt of emergency message	<p><u>Sector Commander is to ensure that the following occurs;</u></p> <ul style="list-style-type: none"> • Acknowledge sender of emergency message and verify SITREP. • Confirm name and rank of crew if not provided. • Confirm the location of the appliance and crew. • Record in incident diary and maintain log. • Advise Officer In Charge (OIC)/ Operations Officer (OO)/ Incident Management Team (IMT)/ Incident Control Vehicle (ICV). • Priority direction to Ground Controller (or to OO) for aerial suppression resources / tasked to respond.

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Direction to Personnel on the sector	<ul style="list-style-type: none"> • Ascertain risk to other crew and appliances on sector. • Other crews to remain on task unless directed or at risk. • Radio traffic to remain silent unless urgent.
As the fire approaches or impacts the appliance:	
Organise assistance	<ul style="list-style-type: none"> • If possible, provide a safe location for crew and appliance to move to if the appliance is drivable. • Contact ground controller for aerial support if available. • If possible while ensuring their safety send appropriate resources to assist. • If not possible prepare appropriate resources to assist following burnover or entrapment. • Maintain ongoing communications with the crew in danger. • Organise standby ambulance and medical response. • Develop an egress plan for crew for use after the fire has passed.
After the fire has passed:	
Post burnover assistance	<ul style="list-style-type: none"> • Confirm welfare of crew members and condition of the appliance. • Assess any medical assistance required. • Relay medical assistance required to IMT/OO/Incident Controller (IC). • Send assistance to assess the situation, crew and appliance. • When possible and safe, Implement the egress plan and organise for crew to be transported from fire ground. • Confirm the welfare of all personnel on the sector that responded to assist the endangered crew prior to continuing routine operation.
Post burn over investigation	<ul style="list-style-type: none"> • Isolate and preserve the vehicle and equipment for investigation. (ensure all crew protection items left with the appliance for investigation). • If possible photograph the appliance in situ.

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5. **Burnover and Entrapment Procedure – ICV.** During a Burnover or Entrapment situation ICV personnel may receive an emergency call direct to the ICV via a sector/division commander or directly from an appliance the following procedure outlines correct actions for personnel to take should this occur.

Action	Description
On notification	
On receipt of emergency message from an appliance or crew	<ul style="list-style-type: none"> Acknowledge details of appliance and crew. Prioritise Emergency Message. Record all information in the emergency message. Refer to OO, IC as priority. Perform priority actions as directed by IC, OO.
On receipt of emergency message from a Sector or Division Commander	<ul style="list-style-type: none"> Prioritise Emergency Message. Record all information in the emergency message. Refer to OO, IC as priority. Perform priority actions as directed by IC, OO.

6. **Burnover and Entrapment Procedure – IMT** The following procedure outlines correct actions for IMT personnel to take to prevent and, if required, respond during a burnover or entrapment situation.

Action	Description
Ensuring fireline safety and mobility	
Briefings	<ul style="list-style-type: none"> IMT to ensure regular briefings of all IMT personnel. Operations section to ensure briefings occur in accordance with SOP 3.5.10 Crew Safety at Bushfires. SMEACS format to be used for all briefings.
Situational awareness	<u>Operations Section Personnel must maintain awareness of and communicate to all personnel;</u> <ul style="list-style-type: none"> Division, sector structure and resourcing. Current and forecasted weather. Current and predicted fire behavior. Potential fireline hazards (hazardous trees, terrain, accessibility, etc). Objectives, strategies and tactics. If possible monitor appliance / equipment location through AVL and identify and notify operations of potential risks.
Operational Standards	<u>Operations Officer is to ensure that;</u> <ul style="list-style-type: none"> Turn around and passing areas are constructed according to standard. Safety zones are identified or constructed. Crews are tasked appropriately for the observed and forecasted fire behaviour.
On notification	

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On receipt of emergency message	<p><u>Operations Officer is to ensure that the following occurs:</u></p> <ul style="list-style-type: none"> • Acknowledge the sender of emergency message and verify SITREP. • Confirm Name and rank of crew if not provided. • Confirm the location of the appliance and crew. • Confirm threat to other personnel and appliances. • Notify Division and Sector Commanders of the emerging risk. • Record in incident diary and maintain log. • Advise Incident Controller. • Task Aerial suppression resources to protect crews if possible. • Task aerial intelligence resources to provide intelligence direct to crew / Sector Commander (SC) and or OO.
Direction to Division and Sector Commanders	<ul style="list-style-type: none"> • Ascertain the risk to other Divisions and Sectors, provide appropriate direction if required. • Personnel are to remain on task unless directed or at risk. • Radio traffic to remain silent unless urgent.
As the fire approaches or impacts the appliance:	
Assistance	<ul style="list-style-type: none"> • The Operations Officer is to establish assistance required by the Division or Sector Commander. • Determine priority of assistance required. • Operations Officer to organise the required assistance.
After the fire has passed:	
Post turnover assistance	<p><u>Operations Officer to confirm Sector/Division Commander:</u></p> <ul style="list-style-type: none"> • The extent of turnover impact crews and appliances. • The welfare of effected crew members and condition of the appliance. • Any medical or egress assistance required. <p><u>The Operations Officer will ensure:</u></p> <ul style="list-style-type: none"> • When possible and safe, implement the egress plan and organise for crew to be transported from fire ground. • Send assistance to assess the situation, crew and appliance. • Confirm the welfare of all personnel on the sector that responded to assist the endangered crew prior to continuing routine operations.
Post burn over investigation	<p><u>Incident Controller will ensure that:</u></p> <ul style="list-style-type: none"> • The safety investigation is initiated. • The appliance and associated equipment is isolated and preserved for investigation. (ensure all crew protection items left with the appliance for investigation).

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7. **Burnover and Entrapment Procedure – COMCEN** The DFES COMCEN may receive emergency messages from first responding appliances during the initial and escalating stages of an incident when command, control and communication have not yet been established at an incident. The following provides a procedure for COMCEN personnel to follow should this occur.

Action	Description
On receipt of emergency message	<p><u>COMCEN personnel are to ensure:</u></p> <ul style="list-style-type: none"> • Acknowledge details of appliance and crew. • Prioritise Emergency Message. • Record all information in the emergency message. • Refer to Supervisor COMCEN as priority. • Perform actions as a priority as directed by Supervisor COMCEN. <p><u>Supervisor COMCEN is to ensure:</u></p> <ul style="list-style-type: none"> • Assistance required is confirmed and dispatched. • Closest available and suitable appliance is dispatched to assist. • Appropriate manager dispatched (District Officer (DO), Area Officer (AO), Community Emergency Services Manager (CESM)). • Air Desk is notified and assistance dispatched if appropriate. • Ambulance Communication Centre is notified. • Maintain communications with affected appliance and crew.
Notifications	<p>Supervisor COMCEN is to notify the State Situation & Analysis Officer (SAO).</p> <p><u>SAO to notify:</u></p> <ul style="list-style-type: none"> • Major incident group as per SOP 2.1.2 - Mobilising. • Local Government Chief Bush Fire Control Officer if involving a Bush Fire Brigade appliance.
On arrival of assistance	<p><u>The Supervisor COMCEN is to ensure that:</u></p> <ul style="list-style-type: none"> • Communications are handed over to the first arriving assistance. • Communications are established and maintained with the Incident Controller. • The SAO is kept informed of the situation.

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8. **Burnover and Entrapment Procedure – Wellness** The Incident Controller is to ensure that following a burnover or entrapment situation all personnel involved are;

- Debriefed prior to leaving the incident.
- Offered support from the DFES Wellness Branch.
- Referred to the available support services.
- Wellness Branch are notified of personnel involved in incident for follow up.
- The relevant line manager is notified of incident i.e. DO, AO, CESM, CBFCO.

9. **Burnover and Entrapment Next of Kin Notifications** In the event of death or injury during a burnover or entrapment situation, Next of Kin Notification is to occur as per [Directive 1.1 – Personnel Administration](#).

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DOCUMENT HISTORY

VERSION	DATE	DESCRIPTION of CHANGE
1.0	Apr 10	New SOP created. New sections created: <ul style="list-style-type: none"> (All) Sourced documents: SOP 62 – Appliance and Crew Protection at Wildfires <i>All listed SOP/SAP, now retired.</i>
1.1	Mar 12	Repair hyperlinks and add version to doc control
1.2	Jan 14	Update formatting and general review
1.3	Jan 14	Procedure change (section 3) to transmit emergency message as a priority prior to activating sirens to prevent interference of back ground noise.
1.4	Sep 14	Protect Crew <ul style="list-style-type: none"> On imminent fire contact, operate protective sprays. (Ensure the spray pattern envelopes the cab and if possible protects the pump from burnover temperatures which may exceed the stall temperature of the pump motor.)
1.5	Aug 15	After the Fire Front Has Passed Under no circumstances are crews to re-enter or move the vehicle. Maintain a safe distance from the vehicle. The vehicle must be checked by a qualified technician prior to recovery. The scene must be preserved to aid subsequent investigation.
1.6	Dec 17	Updated SOP to include the comprehensive crew protection systems in the relevant areas. Updated procedure to reflect current training practices for burnover and entrapment
2.0	Feb 18	Major review and rewrite of complete SOP 3.5.11 <ul style="list-style-type: none"> New introduction with AFAC definitions for entrapment and burnover Update procedures to incorporate comprehensive crew protection systems Add procedures for actions on receipt of an emergency message.

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