

CFA Regional Operating Procedure

Latrobe Valley Open Cut Coal Mines – Response to fires

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Scope This Regional Operating Procedure applies to all CFA operational responses to any fire in the three Latrobe Valley open cut coal mines being Yallourn, Morwell or Loy Yang.

Definitions The following definitions apply to this Regional Operating Procedure:

- **CFA member:** A person who is registered by the Authority as a volunteer officer or member of a brigade and/or a person who is employed by CFA.
- **Health Support Team (HST):** A small number of personnel in a research and monitoring role, deployed to ensure that advice can be provided on the health and well being of personnel whilst working and in rest and recline periods. The HST may also respond to assist injured or ill personnel on the fireground in the absence of Ambulance or other first aid support. HST personnel shall have Basic Wildfire Awareness (CFA 1.26) or Maintain Safety at an Incident Scene (PUAOHS002A), a minimum level of Senior First Aid (level 3) plus advanced skills in fireground injuries, trauma and hydration.
- **Incident Controller:** The individual designated by the control agency to have overall management of the incident and is responsible for all incident activities.
- **Major Fire.** For the purpose of this Standard Operating Procedure a major fire includes any AIIMS Level 2 or Level 3 incident.
- **Medical Officer.** A doctor nominated by CFA who is responsible for personnel welfare.
- **Open cut coal mine:** An area from which coal is mined for the purpose of supply to a power generation facility.
- **Personal Protective Clothing (PPC):** Includes clothing used to provide protection to CFA members from the risks associated with performing a specific operational task for which they are competent and endorsed.
- **Regional Duty Officer:** Rostered Duty Officer for any Region or Area.



- **ESLO:** Emergency Services Liaison Officer is a representative from the coal mine company specifically tasked to liaise with and provide assistance to emergency services and mine controller.
- **Company Health Representative:** A person allocated by the owner company to assist with the health monitoring of company employees. Ideally the Company Health Representative shall be at least First Aid accredited to Level 2. The Company Health representative shall provide advice to company management, through internal company processes via the company Emergency Commander, on the health, safety, wellbeing and any rostering implications that may be encountered through exposure to the incident.
- **Safety Advisor:** An advisor to the Incident Controller on all aspects of potential and current safety and risk management issues present at the incident.
- **Scientific Officer.** A scientist nominated to provide specialist technical scientific advice to CFA personnel.
- **State Duty Officer:** Rostered Duty Officer for the State Control Centre (SCC).

Objective

To describe the procedures for operational response to fires in the three Latrobe Valley open cut coal mines.

Procedure

1. CFA Responsibilities
 - 1.1 CFA is the control agency for all fires (as defined in Victorian Emergency Management Manual) within the open cut coal mines at Yallourn, Morwell and Loy Yang.
 - 1.2 Fire services at each of the mines will undertake fire response in accordance with the Memorandum of Understanding between each of the parent companies and CFA.
 - 1.3 The control of all personnel that have responded to or in support of the fire or may potentially be impacted by the fire, is the responsibility of the Incident Controller. This includes emergency services personnel, site fire services, mines employees and any contractors.
2. CFA members must at all times have atmospheric monitoring capable of providing a warning to the presence of Carbon Monoxide (CO) when entering the open cut mine area. Supervision of all personnel responding to and in support of the fire must be undertaken to ensure that they can all appropriately warned of the presence of CO during fire operations.

3. All personnel responding to any fire or incident within the open cut mine area must be aware of the physical demands and adverse conditions likely to be encountered during operations and consider the potential adverse effects any pre existing medical conditions will have on their health and safety.
4. In addition to the appropriate PPC, personnel engaged in firefighting operations must wear a P2 dust mask at all times they are within the open cut mine area or higher levels of respiratory protection if deemed appropriate by the Incident Controller.
5. The immediate firefighting priority for responding crews is to ensure fixed fire suppressions systems have been activated and that stand-alone fire suppression equipment has been positioned in the mine to control the spread of any fire.
6. For all potential major fires within the mine, the Incident Controller will ensure the following is initiated:
 - 6.1 Immediately notify Regional Duty Officer.
 - 6.2 Appoint a Safety Advisor.
 - 6.3 Regional Duty Officer will notify the CFA Health Support Team and Scientific Officer via the State Duty Officer.
 - 6.4 In consultation with the Incident Controller and Regional Duty Officer the Health Support Team Manager and Scientific Officer will arrange an appropriate deployment to the fire.
 - 6.5 The Health Support Team Manager will notify and liaise with the CFA Medical Officer.
 - 6.6 Regional Duty Officer will notify Ambulance Victoria in accordance with their role as Health Commander – State Health Emergency Response Plan (SHERP). Ambulance Victoria's response will also be in accordance with their Service Improvement System, as attached in Appendix B.
 - 6.7 The Regional Duty Officer will notify the Municipal Emergency Resource Officer – Latrobe City.
 - 6.8 The Incident Controller must ensure that CO monitoring is undertaken during fire suppression tasks using a combination of personal monitors and other atmospheric monitoring equipment.

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- 6.9 Particular attention must be shown to all personnel working in this environment and their safety must remain the highest priority. This may require the withdrawal of personnel who are known to have pre-existing cardiovascular, blood pressure or respiratory system complaints.
- 6.10 Consideration should be given to the deployment of Portable Automatic Weather Stations (PAWS) to assist with weather monitoring within and outside the mine perimeter, subject to the availability of on-site weather station/s.
- 6.11 Consideration should be given to the deployment of remote atmospheric monitoring equipment in consultation with the Scientific Officer.
- 6.12 Consideration should be given to the deployment of supplementary communications equipment, including a portable radio repeater (eg Traralgon).
- 6.13 Should aircraft be considered necessary for asset protection of mine assets, the guidelines attached in Appendix C must be considered.
7. The following actions will be undertaken based on the CO concentrations monitored during operations:
- 7.1 When CO concentrations are **below 30 ppm** there is no restriction to personnel undertaking continuous work in this environment within their physical capabilities and the normal management of fireline resources for duration of **up to 8 hours**.
- 7.2 On receipt of alarm 1 on the Drager personal monitors (this indicates CO concentrations **in excess of 30 ppm**):
- 7.2.1 The Incident Controller must be notified through the Chain-of-Command immediately when CO concentrations reach this level anywhere within the mine.
- 7.2.2 Ongoing monitoring of CO concentrations must be undertaken to determine the extent of the area affected and concentration being encountered. These readings need to be logged and be reported to the Incident Controller.

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- 7.2.3 The Incident Controller will immediately notify the Health Support Team Manager and/or Scientific Officer of the CO concentrations encountered and will be advised of the maximum time personnel can remain within this environment and the duration of rest periods which must be undertaken prior to re-entry. This will involve utilising the guidance tables in Appendix A of this procedure.
- 7.2.4 If not already in place, the Health Support Team Manager and Scientific Officer will deploy to the event.
- 7.2.5 The Health Support Team Manager will liaise with the CFA Medical Officer and determine if the Medical Officer will deploy to the fire.
- 7.2.6 Where a Medical Unit and/or CFA's Health Monitoring Team has been established and/or responded, the parent mine company must be requested to provide a Company Health Representative, as defined under definitions.
- 7.3 On receipt of alarm 2 on the Drager personal monitors (this indicates CO concentrations **in excess of 200 ppm**):
- 7.3.1 The Incident Controller must be notified immediately via Chain-of-Command when CO concentrations reach this level.
- 7.3.2 All personnel in this area must immediately withdraw to a location outside the area where this concentration is encountered.
- 7.3.3 Ongoing monitoring of CO concentrations must be undertaken to determine the extent of the area affected and concentration being encountered.
- 7.3.4 The incident Controller will immediately notify the Health Support Team and/or Scientific Officer of the levels of CO encountered and will be advised of the maximum time personnel can remain within this environment and the duration of rest periods which must be undertaken prior to re-entry. This will involve utilising the guidance tables in Appendix 1 of this procedure.



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7.3.5 All operations in the affected area must be undertaken with respiratory protection in the form of open or closed circuit breathing apparatus. The minimum protection is a P2 mask.

7.3.6 Strategies which employ the use of fixed and/or portable stand-alone firefighting equipment must be immediately implemented.

7.3.7 Ongoing monitoring of CO concentrations is to be undertaken by personnel with open or closed circuit breathing apparatus to determine if personnel may return to operations in the affected area.

- 8 After undertaking major fire operations in any open cut mine all personnel (CFA and mine) will be subject to a health assessment by the Health Support Team and/or CFA Medical Officer. This data is to be recorded and maintained for the information of the Incident Controller and CFA Medical Officer.

Safety notes

- All personnel deployed in fire suppression activities within the open cut coal mine shall wear approved PPC at all times
- All personnel undertaking fire suppression operations within the mine shall wear P2 masks
- All personnel undertaking fire suppression activities in mines shall wear eye protection to protect against fugitive dust
- All entry to coal mines shall be undertaken with atmospheric monitoring
- Consider dehydration during prolonged incidents
- Mine environments at night may be extremely cold and coupled with wet PPC may lead to personnel becoming hypothermic
- Be aware of heavy machinery moving within mines
- Be aware of high voltage cables within mines.
- Be aware of dangerous driving conditions throughout the mine area.
- Be aware of sink holes, un-marked batter edges and edges eroded by water sprays or undermined by water.
- Be aware of moving conveyors throughout mines

- Structural PPC may be required for mine infrastructure protection/suppression or when weather conditions dictate.
- Avoid using CO detectors near exhaust fumes as it may give false readings and trigger false alarms.

Environmental notes

- Where Class A foams are applied to fires then every effort shall be taken to ensure that fire water runoff is contained to the site and the operators are advised of this contamination.



Related Documents			Other Links and References	Delegations
Policies	Standing Orders	SOPs		
Environmental Care	Pre - Incident Planning Fires and Incidents – Management of Health and Safety Environmental Care		Country Fire Authority Act 1958 Country Fire Authority Regulations 2004	Operations Managers

Date to be Reviewed:	Date to Cease:	Date Endorsed:	Endorsed By: <i>Name</i> OIC Region 10
	N/A		

Appendix A – Carbon monoxide exposure table

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30 PPM		50 PPM		80 PPM		100 PPM		150 PPM	
IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
12 hrs	32 hrs	12 hrs	32 hrs	12 hrs	32 hrs	12 hrs	No Return	12 hrs	No Return
8 hrs	24 hrs	8 hrs	24 hrs	8 hrs	24 hrs	8 hrs	No Return	8 hrs	No Return
6 hrs	20 hrs	6 hrs	24 hrs	6 hrs	24 hrs	6 hrs	No Return	6 hrs	No Return
4 hrs	20 hrs	4 hrs	20 hrs	4 hrs	20 hrs	4 hrs	24 hrs	4 hrs	24 hrs
Ref 1									
Ref 2									
200 PPM Remove from area and no return		5% COHb is maximum before cardiac work load may be impaired							
Ref 3		Ref 3							
								<div style="display: flex; justify-content: space-between;"> <div style="width: 20px; height: 20px; background-color: red; margin-right: 5px;"></div> High Risk <div style="width: 20px; height: 20px; background-color: yellow; margin-right: 5px; margin-left: 10px;"></div> Medium Risk <div style="width: 20px; height: 20px; background-color: green; margin-right: 5px; margin-left: 10px;"></div> Low Risk </div>	
30 PPM	COHb	Residual @16 hrs	Time to 0 COHb		These exposure times DO NOT take in to account: Smokers pre-loading of CO. Medical history. Increased workload. Respiratory status and history eg, asthma Exposure time calculated at medium workload. Maximum COHb level acceptable by Australian Safety & Compensation Council (ASCC) is 5%.				
12 hrs	4.60%	2.31%	32 hrs						
8 hrs	4%	1.06%	24 hrs						
6 hrs	3.40%	0.68%	20 hrs						
4 hrs	2.70%	0.39%	20 hrs						
50 PPM	12 hrs	7.20%	3.53%	32 hrs					
8 hrs	6.40%	1.63%	24 hrs						
6 hrs	5.60%	1.06%	24 hrs						
4 hrs	4.40%	0.62%	20 hrs						
80 PPM	12 hrs	10.80%	5.01%	32 hrs					
8 hrs	9.80%	2.30%	24 hrs						
6 hrs	8.70%	1.53%	24 hrs						
4 hrs	6.90%	0.92%	20 Hrs						
100 PPM	12 hrs	12.90%	5.80%	N O R E T U R N					
8 hrs	11.80%	2.72%							
6 hrs	10.60%	1.80%							
4 hrs	8.50%	1.09%							
150 PPM	12 hrs	17.50%	7.40%						
8 hrs	16.50%	3.40%							
6 hrs	15.10%	2.30%							
4 hrs	12.40%	1.50%							
Ref 4									
References									
Ref 1	Australian Safety & Compensation Council. National Exposure Standards (TWA)								
Ref 2	NIOSH. Occupational exposure to Carbon monoxide 1972, Absorption of carbon monoxide chart, duration of exposure chart								
Ref 3	Australian Safety & Compensation Council. (STEL)								
Ref 4	Prof. Chris Grey Deakin University, Victoria Australia								