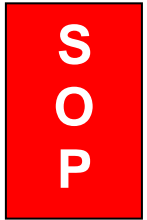


JOINT SOP

Title	Incident air monitoring for community health
Purpose	This Joint Standard Operating Procedure (JSOP) details the operating procedure for Incident Controllers and the Environment Protection Authority (EPA) in decision making for the deployment of incident air monitoring equipment and the initial assessment of air quality data and information to enable the assessment and management of community health impacts during large, complex incidents with airborne emissions (smoke) in the outdoor environment.
Scope	<p>This JSOP applies to significant or prolonged events where smoke or other air emissions have the potential to impact on community health. This includes community exposure to smoke from fires, hazardous materials incidents, planned burns or other sources.</p> <p>This JSOP describes how agencies share information, provide advice and assess the need for incident air monitoring deployments for community health protection purposes during an emergency.</p> <p>Occupational health and safety issues associated with exposure of emergency services to smoke or other air pollutants are not covered by this JSOP.</p>
Applicable Agencies	<p>This procedure applies to the following agency personnel;</p> <ul style="list-style-type: none"> • CFA • DELWP • DHHS • EMV • EPA • MFB • VICSES
Content	<p>The procedural contents of this JSOP are:</p> <ul style="list-style-type: none"> • Step 1: Evaluate the situation [Incident Controller] • Step 2: Consider deployment of Incident Air Monitoring [Incident Controller] • Step 3: Communicate decision & relevant information. [Incident Controller and EPA] • Step 4: Deployment [EPA] • Step 5: Demobilisation [EPA] <p>Schedule 1 – Request for EPA Incident Air Monitoring Schedule 2 – EPA Initial Air Quality Report</p>

<p>Responsibilities</p>	<p>Fire Agencies (MFB, CFA, DELWP)</p> <ul style="list-style-type: none"> • Control agency for fires and hazardous materials (hazmat) incidents. • Deployment of first response air monitoring equipment at the incident site. • Plume and/or fire modelling. <p>Environment Protection Authority (EPA)</p> <ul style="list-style-type: none"> • Deployment of incident air monitoring equipment for measuring community exposure to smoke or other emissions associated with incidents that have the potential for significant or prolonged impacts on community health. • Collection and interpretation of air monitoring data and information. • Technical assessment and expert interpretation of results (monitoring data, plume modelling and other information) in consultation with Scientific Officers of fire agencies. • Provision of interpreted air monitoring data, forecasting information, assessment of potential health risk and advice for impacted communities. <p>Victoria State Emergency Service (VICSES)</p> <ul style="list-style-type: none"> • Deployment of incident air monitoring equipment on behalf of EPA. <p>Department of Health and Human Services (DHHS)</p> <ul style="list-style-type: none"> • When a decision is made to deploy EPA air monitoring equipment, the CHO receives advice from EPA on air pollutants of potential health concern being monitored; technical assessments with expert interpretation of air monitoring data; and ongoing assessment of potential risk to community health. <p>Emergency Management Victoria (EMV)</p> <ul style="list-style-type: none"> • Appoint a State Response Controller • Coordination of the emergency • Consequence management of the emergency
<p>Definitions</p>	<p>The following definitions apply to this procedure:</p> <p>First response air monitoring Air quality monitoring is undertaken by fire services, either emergency responders or specialist scientific officers deployed to the incident and conducted at the incident site and/or areas immediately adjacent to the incident site. First response incident air monitoring is undertaken in the initial hours of the incident.</p> <p>Incident Air Monitoring Air quality monitoring is undertaken by fire services and EPA to provide interpreted data about the level of airborne hazards of community health concern.</p> <p>EPA uses the first response air monitoring information from fire agencies to inform decisions about incident air monitoring. For significant or prolonged incidents EPA deploys incident air monitoring equipment within 24 hours of a request and may commence deployment of relocatable air monitoring stations from 3 days to provide enhanced and long-term air quality monitoring.</p> <p>Science Officers A generic term to refer to scientific advisors, subject matter experts and agency staff responsible for the provision of or coordination of science advice or expertise including public health expertise.</p>

PROCEDURE



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1. Evaluate the Situation – **Incident Controller**

1.1 When significant and persistent smoke or emissions are being generated which may impact or are impacting a community, the following should be considered:

- Nature of the fire/event (What are we dealing with?)
- Scale (How big is it now? Will it grow?)
- Predictions of estimated duration (How long will it persist?)
- Community (Proximity to incident? Are there vulnerable populations?)
- Predictive services (Is modelling and forecasting required?)
- Meteorological forecast (What is the weather doing? Will this change?)
- Time to activate capabilities (Time from decision to receipt of valid data?)
- Engagement of agencies at incident, region and state level EMT's (Are the right agencies engaged and represented?)
- Identify required protective actions / control measures (shelter indoors/exclusion zones or other actions required?)
- Community notifications and warnings (What message(s) and information does the community need?)
- Report significant and persistent smoke emissions to EPA.

2. Consider deployment of Air Monitoring equipment – **Incident Controller**

2.1 The fire services may undertake air monitoring, where they have the capability to do so, or the Incident Controller may request that EPA deploy air monitoring equipment.

2.2 In some situations, there may be a clear need for deployment of air monitoring equipment to gather data to inform decisions about protection of community health. In other situations, EPA expert advice, interpretation of first responder data and forecasting products may be all that is needed to inform decisions about protecting community health (which may be provided in the format at schedule 2).

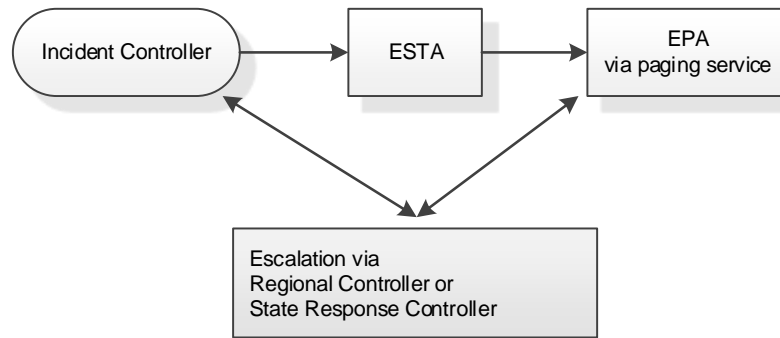
2.3 The table below provides an overview of the capabilities available to monitor air quality and the responsibilities for their deployment.

Response Type	Description	Indicative Response times	Who
First Response Monitoring	Initial data from Emergency Services equipment in field.	Within hours	Fire agencies
Incident Air Monitoring	Specific air monitoring equipment to monitor a range of parameters to acquire valid data to inform decisions about protecting community health from prolonged or significant events.	<24 hrs	EPA (Emergency Services Organisations provide assistance in deployment)
Enhanced Air Monitoring	Relocatable air monitoring stations.	3 days + (Depends on type)	EPA

2.4 Schedule 1 provides a risk assessment tool and template to record decision making and relevant information for the Incident Controller to send to EPA.

3. Communicate decision and other relevant information – **Incident Controller and EPA**

3.1 Once a decision has been taken by the Incident Controller to trigger the deployment of incident air monitoring equipment, a formal request is made via ESTA to EPA (via EPA paging service).



3.2 Should EPA initiate air monitoring, EPA will ensure that the Incident Controller is informed prior to deployment. EPA will then request incident details of the Incident Controller. EPA notifies the CHO of intention to deploy incident air monitoring and provides copy of schedule 1 (via DHHS State Duty Officer).

3.3 Where multiple events occur concurrently requests may be escalated to the Regional Controller or State Response Controller to determine the priority of deployment of resources.

3.4 Incident Controller provides EPA (see schedule 1 for template):

- The location and type of incident.
- Any potential impact on the community (e.g. known or predicted human health hazards in the smoke or associated with other emissions).
- Any monitoring data, observations, modelling, or forecasting undertaken (especially about the smoke plume).
- The criteria that triggered the activation.
- Safety assessments and/or relevant risk assessments.
- Safety information for air monitoring operators.
- Any other information relevant to monitoring.

3.5 Once a decision has been made to deploy EPA air monitoring equipment, EPA will establish a 'scientific' meeting/teleconference (between relevant Scientific Officers from EPA and first response agencies) to ensure regular communication with the Incident Management Team.

3.6 The purpose of this scientific meeting is to discuss the deployment strategy (including initial hazard assessment to determine air quality parameters to be monitored), understand the possible pollutants and ensure that available data and information is being shared efficiently.

4. Deploy – EPA

4.1 Once a decision to deploy has been made EPA identifies:

- The equipment required.
- The availability of equipment.
- The nearest equipment to the incident (including VICSES incident air Monitoring equipment).
- Support needed to enable deployment.

4.2 Once the availability and location of equipment is confirmed EPA, in consultation with the Incident Controller and Scientific Officers:

- Determines the monitoring plan including monitoring parameters and available air quality information.
- Identifies potential deployment sites.
- Determines the deployment plan.

- Confirms logistic support (the Incident Controller is required to ensure if EPA air monitoring operators are deployed, they are embedded within the Incident Structure within the IEMT or IMT as appropriate).
- Communicates monitoring plan and collates available data and information to Incident Controller via Initial Air Quality Report at schedule 2.
- Informs the CHO of the decision to deploy air monitoring equipment, the airborne hazards and air quality parameters to be monitored through sending the Initial Air Quality Report at schedule 2.

4.3 Once the equipment is deployed and acquiring data EPA:

- Reports in accordance with Initial Air Quality Report at schedule 2 until sufficient data is available to enable reporting in line with J03.19 and J03.20.
- Reports and provides advice in accordance with JSOP J03.19 for fine particles and other parameters.
- Reports and provides advice in accordance with JSOPs J03.20 for carbon monoxide (if relevant).
- Reports on any other identified emissions of potential community health concern (ie specific to the incident).
- Displays Incident Air Monitoring data to EPA AirWatch (community notifications and warnings through Vic Emergencies).
- Approves and publishes community information and warnings as required where the deployment is for an incident not being managed by an Incident Controller, or where air quality concerns extend beyond the area being managed by the Incident Controller (e.g. air pollution from other sources).

4.4 Where additional equipment is to be deployed (such as relocatable air monitoring stations) the deployment follows the same process as above.

5. Demobilisation - **EPA**

- 5.1 Within three days following deployment, EPA and the Incident Controller determine the triggers for de-escalating air monitoring. Inputs to these triggers include predictions, professional judgement, and the relevant standards for the contaminants of concern.

SAFETY

Emergency Personnel need to ensure that the protection and preservation of life is maintained at all times.

In the application of this JSOP the following safety considerations apply:

- Air monitoring equipment will not be deployed to sites unless it is safe to enter.
- Air monitoring operators are not to work in smoky areas for prolonged periods.

REFERENCE

Related Documents	<p>State Smoke Framework (EMV)</p> <p>Smoke Management Aide Memoire (EMV)</p> <p>Community Smoke Air Quality and Health Standard (DHHS & EMV)</p> <p>Standard for Managing Significant Carbon Monoxide Emissions (DHHS & EPA)</p> <p>SOP J03.19 Managing significant community exposures to fine particles from smoke (EMV)</p> <p>SOP J03.20 Managing significant community exposure to carbon monoxide from smoke (EMV)</p> <p>SOP J04.01 Incident Public Information and Warnings (EMV)</p> <p>Protective Action Decision Guide for Emergency Services during Outdoor Hazardous Atmospheres (MFB)</p> <p>Protective Action Guide for Local Government and Industry during Outdoor Hazardous Atmospheres (MFB)</p>
Environment	Nil

REVIEW		
Date Issue	3 July 2017	
Date Effective	1 August 2017	
Date to be Reviewed	August 2020	
Date to Cease		
AUTHORITY		
The Emergency Management Commissioner has issued this SOP under section 50 of the Emergency Management Act 2013.		
Approved	Signature	Date
Craig Lapsley Emergency Management Commissioner		
Endorsed	Signature	Date
Nial Finegan Chief Executive Officer, EPA		
Charles Guest Chief Health Officer, DHHS		

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SCHEDULE 1

Request for Incident Air Monitoring

Incident name:

Control Agency:

Time/Date:

Incident location:

Control Location:

Incident controller Name:

Contact No:

Situation:

Type of incident:	
Potential community impact:	
Available monitoring data:	
Safety assessments and/or relevant risk assessments:	
Safety information for Air Monitoring staff:	
Other information relevant to monitoring:	

Activation criteria:

Event	Example Scenario	Weighting	Score
Visibility in local community	<5 km	3	
	>5 km< 20 km	2	
	>20 km	1	
Community Proximity	Downwind community	3	
	Large upwind community	2	
	Small upwind community	1	
Weather Forecast	Relatively still, overcast	3	
	Relatively windy, clear skies	2	
	Relatively windy, rain forecast	1	
Topography	Hilly with valleys subject to inversion	3	
	Not applicable	2	
	Flat landscape, dispersion likely	1	
Class of event or hazard	Tyre fire, chemical plant, warehouse, coal mine or similar	3	
	Hydrocarbon spill, chemical spill or similar	2	
	Bushfire or planned burn, composting site or similar	1	
Expected duration of event	>4 days	3	
	>2 days	2	
	24 hours or less	1	
	Note: Any event that is not-applicable scores a zero (0).	Total:	
	≤6	Low risk	Deployment not necessary
	7 – 12	Medium risk	Consider deployment – professional judgment
	> 12	High risk	Trigger deployment

Decision: Incident Air Monitoring is requested from _____.

Signed: (Incident Controller) _____ **Date:** _____

SCHEDULE 2

EPA Initial Air Quality Report

Situational Analysis Summary:

It is EPA's Assessment based on (insert/delete as appropriate):

- smoke forecasting,
- smoke observations,
- EPA data from XYZ [insert equipment type],
- data provided by XYZ [insert organisation] organisation using [insert equipment type], and
- assessment of the likely air pollutants with potential to impact community health.

That for fine particles (PM_{2.5}) in smoke:

- The air quality category is estimated to be in the "[insert air quality category]" range.
- This level of air quality is likely to remain/disperse etc [insert assessment of what the smoke will do: stay [for x number of hours], disperse, and be at altitude and not an issue at X km away].
- The health message is [insert health message from the *Community smoke, air quality and health standard.*]

For other air pollutants in smoke or other emissions:

- Other than fine particles, other primary air pollutants of potential concern for community health are: x,y,z.

Time/Date: Hour, Day, Month Year [current time and date]

Report number: 1 (each report numbered sequentially)

Incident controller name: [relevant IC] **Contact No:** [mobile phone]

EPA contact name: [EPA approver for report] **Contact No:** [mobile phone]

Location: [Location of the incident – event name]

Situation:

Commentary: [give a simple 3-4 line synopsis of the event status in relation to smoke and potential community effects]

Likely major/primary pollutants are: [insert the likely pollutants] (eg, SO₂, PM_{2.5}, CO)

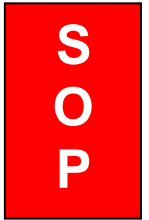
Which pollutants are being measured for this incident?

Weather:

Commentary: [give a simple 3-4 line synopsis of the weather conditions]

Outlook: [give a synopsis of what is expected over the next few hours, and next day, in relation to air quality based on predicted weather and smoke effects]

Likely Smoke behaviour: [what is the smoke likely to do and how might this affect air quality]



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Air quality observations and available data

Observations:

[Insert detail of the observations and photos if available]

Data:

[Insert detail of available or indicative data and the source that the data came from along with graphs, plots etc if available]

EPA Likely Air Quality Monitoring Plan

EPA, in consultation with the Incident Controller and other relevant agencies is intending to deploy/not deploy air monitoring equipment to XX number of sites. Monitoring will include: [select appropriate instrument type(s) to include with the report. Delete if not deploying].

Site 1:

- Instrument name (parameter) – Planned to deploy at [insert date and time] and begin to provide data from [insert date and time].
- Instrument name (parameter) – Planned to deploy at [insert date and time] and begin to provide data from [insert date and time].
- Instrument name (parameter) – Planned to deploy at [insert date and time] and begin to provide data from [insert date and time].

Site 2:

- Instrument name (parameter) – Planned to deploy at [insert date and time] and begin to provide data from [insert date and time].
- Instrument name (parameter) – Planned to deploy at [insert date and time] and begin to provide data from [insert date and time].
- Instrument name (parameter) – Planned to deploy at [insert date and time] and begin to provide data from [insert date and time].

[insert other sections for more sites]

EPA Likely Deployment Plan

EPA, in consultation with the Incident Controller and other relevant agencies is intending to deploy by the following means:

- Date – method
- Date - method
- Date - method

End of Report