

JOINT SOP

Title	Managing Significant Community Exposures to Fine Particles from Smoke.
Purpose	To detail the arrangements between agencies for the provision of air quality information and specifically the process for communicating public health protection messages or warnings to affected communities during a significant or prolonged smoke-generating incident or event.
Scope	<p>This Joint Standard Operating Procedure (JSOP):</p> <ul style="list-style-type: none"> • Describes the operating procedure for Incident Controllers, Environment Protection Authority (EPA) and Department of Health and Human Services (DHHS) in responding to reduced air quality and potential community health impacts from incidents which generate significant levels of fine particles in smoke. • Describes how agencies share air quality data and information, and provide corresponding health protection messages and advice to smoke-impacted communities. • Applies to large area smoke impacts from vegetation fires (i.e. bushfires or planned burns) where fine particles (as PM_{2.5}) are the primary health hazard of concern for the community. • May be applied to single location events that produce significant levels of fine particles such as fires in coal mines, tyre stockpiles or other industrial events (i.e. large-scale, extended or complex incidents where generated smoke or other emissions may impact on community health). <p>For incidents or events where other unique air quality hazards of equal or greater health concern than fine particles (as PM_{2.5}) are present, the assessment of public health risks and management through the use of additional specialised protocols may be required.</p> <p>Occupational health and safety issues associated with smoke exposure for emergency services 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 • EPA • EMV • MFB • VICSES

<p>Content</p>	<p>The contents of this JSOP procedure are:</p> <ul style="list-style-type: none"> • Step 1: Evaluate situation [Incident Controller and EPA] • Step 2: Notify when PM_{2.5} trigger concentrations are reached [EPA] • Step 3: Assess air quality information [EPA] • Step 4: Provide advice to community [Incident Controller, EPA and DHHS] <p>Schedule 1 – Process for 1 hour average trigger values for PM_{2.5} Schedule 2 – Process for 24 hour rolling average trigger values for PM_{2.5} Schedule 3 – Process for temporary relocation Schedule 4 – EPA Air Quality Report Schedule 5 – Public health protection messages for smoke impacts (as PM_{2.5}) on air quality</p>
<p>Responsibilities</p>	<p>Department of Health and Human Services (DHHS)</p> <ul style="list-style-type: none"> • Chief Health Officer pre-authorises Air Quality Category health protection messages for fine particles as PM_{2.5} • If 24 hour rolling average PM_{2.5}Air Quality Category reaches Hazardous (high) or Hazardous (extreme), assess need for additional health protection messages, advice or actions and advise State Emergency Management Team on provision of additional health protection advice and actions. <p>Environment Protection Authority (EPA)</p> <ul style="list-style-type: none"> • Monitor and interpret air quality data for measuring community exposure to smoke and other air emissions associated with incidents with the potential for significant or prolonged impacts on community health. • Provide interpreted air monitoring data, forecast information, assessment and advice on public health risks in impacted communities to Incident Controller and DHHS (as specified). • Provide Air Quality Category health protection messages relevant to the level of smoke impact (as PM_{2.5}) to Incident Controller and others to issue via VicEmergency public warnings and information systems. • Provide community health protection messages and advice via VicEmergency public warnings and information systems for air quality incidents not managed by a fire agency (e.g. smoke originating from fire activity outside Victoria). <p>Emergency Management Victoria (EMV)</p> <ul style="list-style-type: none"> • Appointment of State Response Controller. • Coordination of the emergency. • Consequence management of the emergency. • State-level Relief and Recovery of the emergency. <p>Fire Agencies (MFB, CFA, DELWP)</p> <ul style="list-style-type: none"> • Control agency for fires and hazardous materials (hazmat) incidents.

	<ul style="list-style-type: none"> • Deployment of first response air monitoring equipment at the incident site. • Public warnings and information for incidents and planned burns under their control. • Plume and/or fire modelling. <p>Victoria State Emergency Service (VICSES)</p> <ul style="list-style-type: none"> • Deployment of incident air monitoring equipment on behalf of EPA.
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Definitions	<p>The following definitions apply to this procedure:</p> <p>PM_{2.5} Fine particles with an aerodynamic diameter of less than 2.5 microns are known as PM_{2.5}. Fine particles are a mixture of solid particles and liquid droplets which are small enough to be breathed deeply into the lungs. They are the smoke component most useful as an air quality monitoring measure to inform recommended precautionary actions to protect public health.</p>
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PROCEDURE

1. Evaluate the situation – **Incident Controller and EPA**
 - 1.1 Incident air monitoring arrangements are established (refer JSOP J03.18).
 - 1.2 EPA air monitoring equipment measures PM_{2.5} concentrations.
 - 1.3 Incident Controller provides EPA with data from first responder air monitoring at the fire site and in the community (if monitoring is occurring) and plume modelling information.
 - 1.4 Incident Controller provides information on any changes to attack strategies that may change smoke levels and behaviour to EPA.
 - 1.5 EPA accesses any other available data, air quality information and meteorological factors.
2. Notify when PM_{2.5} trigger concentrations are reached - **EPA**
 - 2.1 EPA notifies the Incident Controller and DHHS when the specified 1 hour average PM_{2.5} trigger concentration of 249 µg/m³ or greater is reached as per Schedule 1.
 - 2.2 EPA advises the Incident Controller when 24 hour rolling average triggers for PM_{2.5} require community notifications and warnings to be issued for Air Quality Categories: *Unhealthy (sensitive) groups*; *Unhealthy (all)* and *Very Unhealthy (all)* as per Schedule 2.
 - 2.3 EPA notifies the Incident Controller and DHHS when the specified 24 hour rolling average PM_{2.5} trigger concentration of 177 µg/m³ or greater is reached as per Schedule 2.
 - 2.4 Where there is no Incident Controller, EPA provides this advice to the relevant agency (e.g. DELWP for planned burns or EMV for smoke not originating in Victoria) and liaise with the State Control Centre to ensure community notifications and warnings are issued.
3. Assess air quality information - **EPA**
 - 3.1 EPA assess areas of smoke plume impact and PM_{2.5} monitoring data and provide

Air Quality Report (Schedule 4) to Incident Controller and DHHS (as per Schedule 1 or Schedule 2).

3.2 EPA to commence periodic reporting based on frequency set in Schedules 1 and 2, based on predicted or observed PM_{2.5} concentrations. EPA notifies Incident Controller and DHHS (as specified) on reporting times.

4. Provide advice to the community – **Incident Controller, EPA and DHHS**

4.1 EPA provides the Incident Controller with expert advice in an Air Quality Report which includes Chief Health Officer pre-authorized health protection messages for PM_{2.5} for the community.

4.2 Incident Controller issues community notifications and warnings via the warnings platform based on EPA advice and health protection messages for PM_{2.5} (Schedule 5) in accordance with JSOP 4.01 Incident Public Information and Warnings.

4.3 Where Air Quality Categories *Hazardous (high)* or *Hazardous (extreme)* are predicted to or have been reached, EPA will seek advice from Chief Health Officer on need for additional health protection messages or risk mitigation measures.

4.4 Chief Health Officer advises State Emergency Management Team regarding need for additional health protection messages or risk mitigation measures.

4.5 Where additional health protection advice or risk mitigation measures are required the Chief Health Officer provides this advice to Incident Controller and others (as required). Advice to temporarily relocate sensitive groups is provided to Incident Controller, State Control Team and State Coordination Team (as per Schedule 3).

4.6 Where no Incident Controller is in place:

4.6.1 Planned burns – During smoke incidents resulting from planned burns managed by a fire agency (e.g. DELWP, CFA), EPA provides advice to that agency via the State Agency Commander (or other identified point of contact), and authorises community notifications and warnings to be issued to the community as required. The responsible agency publishes the required community notifications and warnings.

4.6.2 Other sources - During smoke incidents not managed by a fire agency (e.g. smoke from interstate fires), EPA may publish community notifications and warnings or work with other agencies with capability to publish community notifications and warnings and authorise their release (as per JSOP 4.01 Incident Public Information and Warnings).

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:

- Nil

REFERENCE

Related Documents	State Smoke Framework (EMV) Community Smoke Air Quality and Health Standard (DHHS & EPA) SOP J03.18 Incident Air Monitoring for Community Health SOP J04.01 Incident Public Information and Warnings
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
Professor Charles Guest Chief Health Officer, DHHS		
Nial Finegan Chief Executive Officer, EPA		

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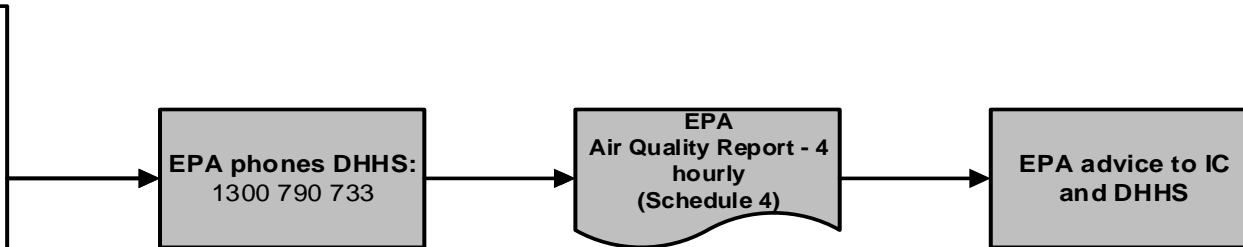
Schedule 1

Process for 1 hour average triggers values for PM_{2.5}

Air Quality Category

Very unhealthy all
 $\geq 249 \mu\text{g}/\text{m}^3$

Hazardous high
 $\geq 370 \mu\text{g}/\text{m}^3$



Note:

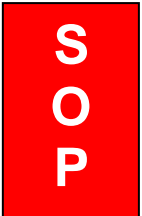
- EPA ask for DHHS State Duty Officer (SDO).
- Request that DHHS SDO contact rostered DHHS Environmental Health Policy and Risk Management Officer.
- EPA provide update on incident.

Note:

- Report produced every 4 hours until rolling 24hr average is reached.

Note:

- EPA email report to DHHS airquality@dhhs.vic.gov.au
- EPA email report to Incident Controller and follow up with phone call.
- EPA Cc report to SCC intelligence section sccvic.intel@scc.vic.gov.au



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Public Health Messages

Messages provided to the community are detailed in **Schedule 5**.

In the absence of air quality monitoring data, fire specific CHO-endorsed community fact sheets are available from EMCOP/Library/IMT Toolbox. Messages from these fact sheets can be used in public health messaging for the following fire types: bushfire, landfill, tyre, peat and brown coal mine.

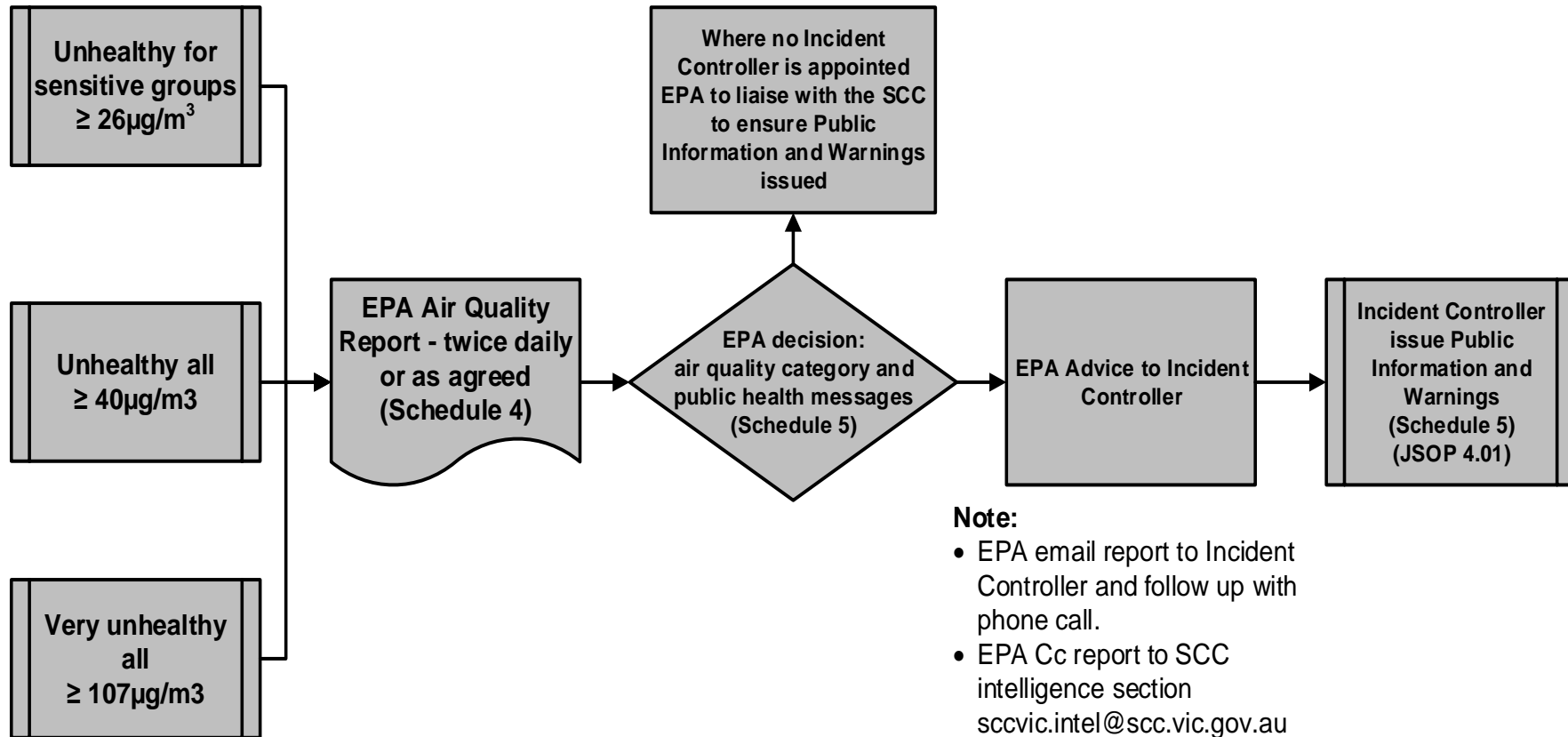
EPA to ensure an EMLO is available to the SCC where any hazardous level has or is anticipated to be reached.

JSOP 4.01 provides details on the process for EPA to approve the release of health messages.

Schedule 2

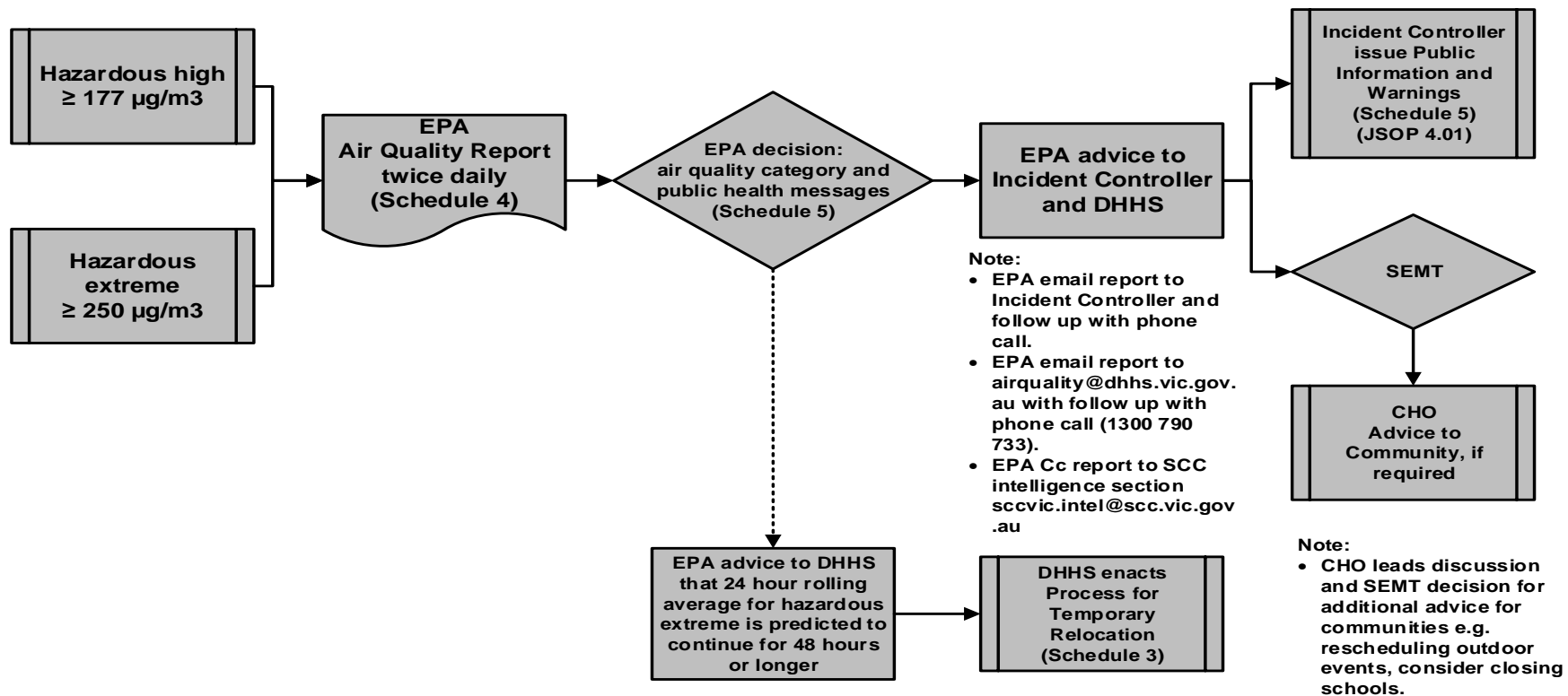
Process for 24 hour rolling average triggers values for PM_{2.5}

Air Quality Category



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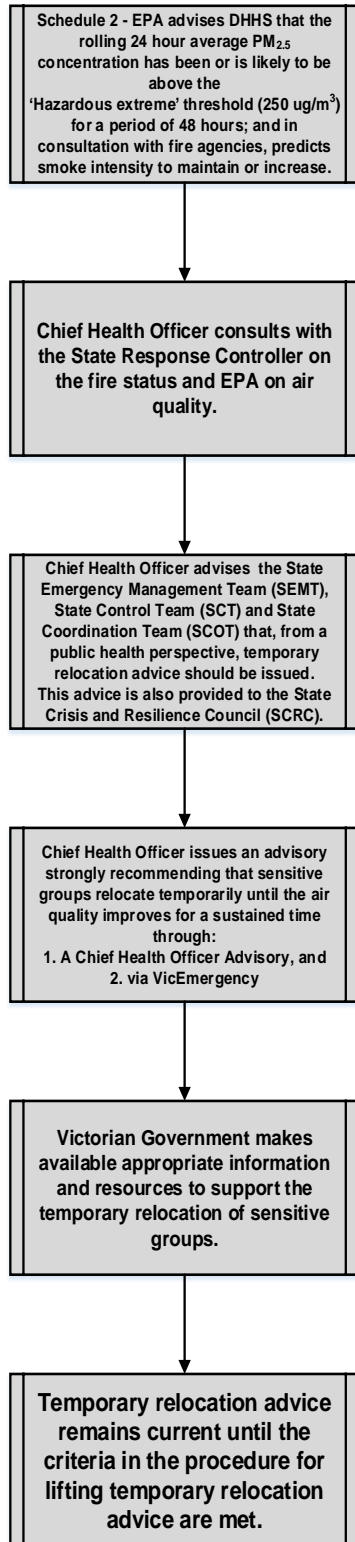
EPA to ensure an EMLO is within the SCC where any hazardous level has or is anticipated to be reached.

JSOP 4.01 provides details on the process for EPA to approve the release of health messages.

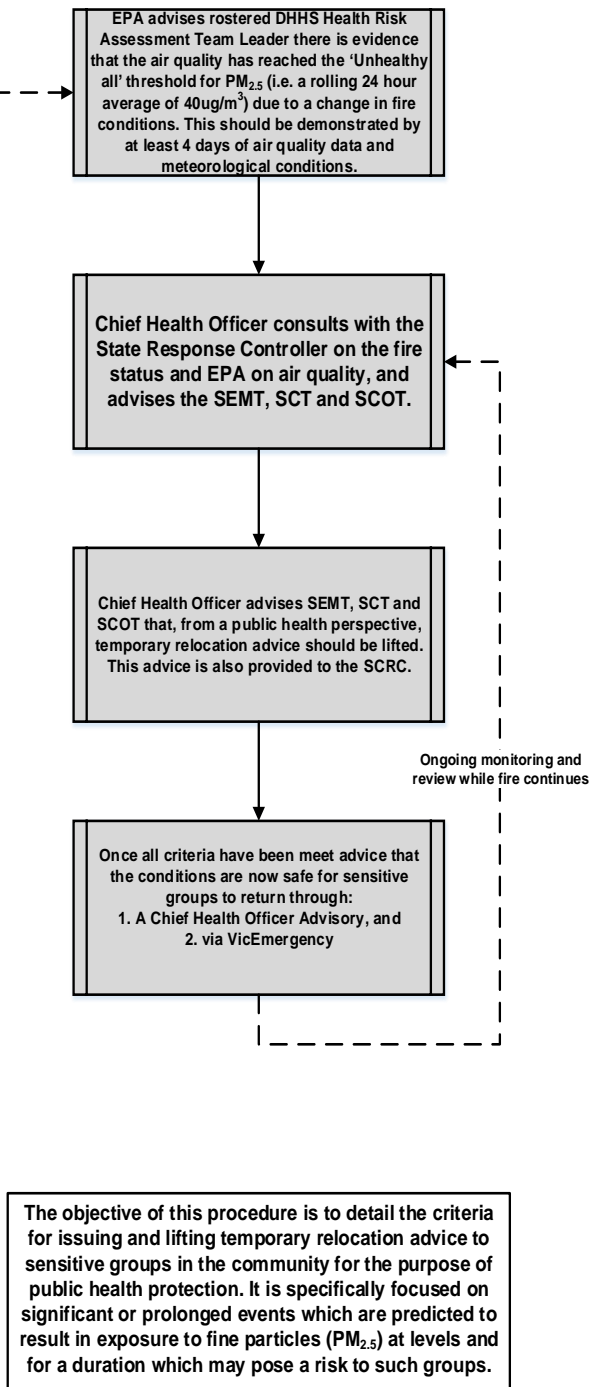
Schedule 3

Process for Temporary Relocation

Process for issuing Temporary Relocation Advice



Process for lifting Temporary Relocation Advice



Schedule 4

EPA Air Quality Report

Situational Analysis Summary:

It is EPA's Assessment based on the *Community Smoke, Air Quality and Health Standard (Air quality assessment, forecasting and public health protection messaging for particulate matter) Standard* that:

- the air quality category is "[insert air quality category]".
- This level of air quality is likely to [insert assessment of what the smoke will do for [x number of hours/days].
- The health message is [insert health message from the Schedule 4]

Time/Date: [current time and date]

Report Number: [each report numbered sequentially from first report]

Incident Controller Name: [relevant IC] **Contact No:** [IC mobile phone]

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

Location: [Location of the incident – event name as per fire agency naming]

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]

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]

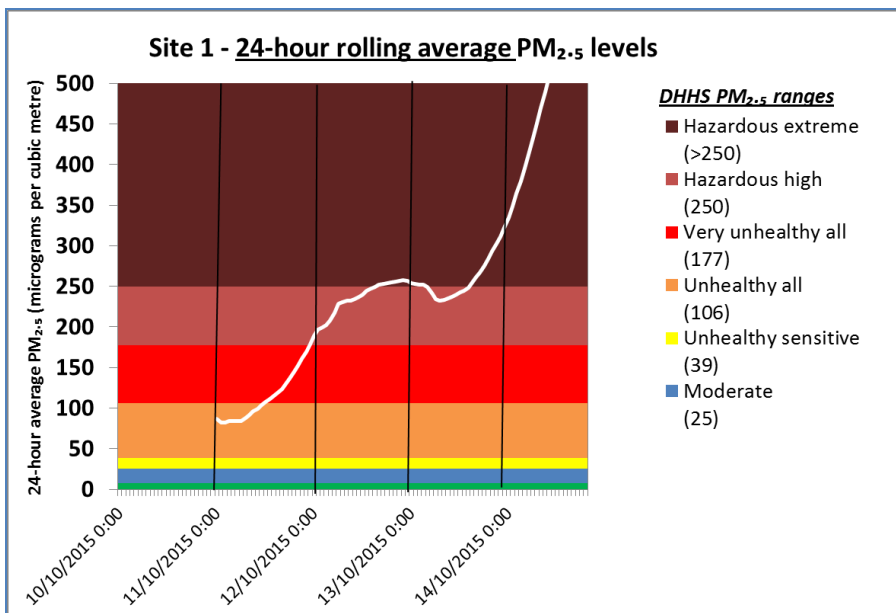
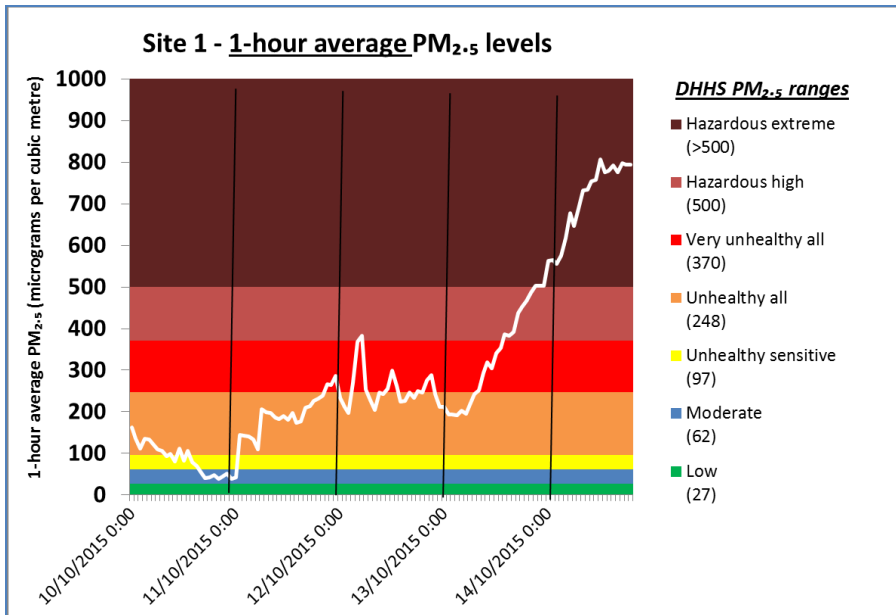
Likely Smoke behaviour: [what is the smoke likely to do and how might this affect air quality]

Air quality observations and data summary

Observations: [Insert detail of the observations and photos if available]

Data: Overall summary time series for:-

1. PM_{2.5} 1 hour – as measured.
2. PM_{2.5} 24 hour rolling average – as measured.



The x axis on these graphs can be scaled as appropriate.

Air quality and data per site / instrument

Site 1:

- [\[Instrument name \(parameter\)\]](#) – Time series for:-
 - PM_{2.5} 1 hour – as measured.
 - PM_{2.5} 24 hour rolling average – as measured.
- [\[Instrument name \(parameter\)\]](#) – Time series for:-
 - PM_{2.5} 1 hour – as measured.
 - PM_{2.5} 24 hour rolling average – as measured.

Site 2:

- [Instrument name (parameter)] – Time series for:-
 - PM_{2.5} 1 hour – as measured.
 - PM_{2.5} 24 hour rolling average – as measured.
- [Instrument name (parameter)] – Time series for:-
 - PM_{2.5} 1 hour – as measured.
 - PM_{2.5} 24 hour rolling average – as measured.

(insert other sections for more sites)

End of Report

Schedule 5:

Public Health Protection messages for Smoke impacts (as PM_{2.5}) on Air quality

Air quality category	Cautionary health advice
General health messages¹	<p>Smoke can affect people's health.</p> <p>People with heart or lung conditions (including asthma), children 14 years and younger, pregnant women and people over 65 are more sensitive to the effects of breathing in smoke.</p> <p>People with existing heart or lung conditions (including asthma) should follow their treatment plan as advised by their doctor.</p> <p>If you are experiencing any symptoms that may be due to smoke exposure, seek medical advice or call NURSE-ON-CALL on 1300 60 60 24.</p> <p>Anyone experiencing wheezing, chest tightness or difficulty breathing should call 000.</p>



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¹ These messages are for use in the absence of air quality monitoring data and will appear by default in all VicEmergency warnings and advice messages for incidents generating smoke, until EPA advises otherwise.

Unhealthy for sensitive groups $\geq 26\mu\text{g}/\text{m}^3$ (24 hr av)

Sensitive people including those with heart or lung conditions, children 14 years and younger, pregnant women and people over 65 years of age should **reduce prolonged or heavy physical activity**. Where possible these people in the community should also limit the time spent outdoors.

Anyone with a heart or lung condition should take their medication as prescribed by their doctor.

People with asthma should follow their asthma management plan.

Anyone with concerns about their health should seek medical advice or call NURSE-ON-CALL on 1300 60 60 24.

Check EPA's air quality reports at www.epa.vic.gov.au

For further information about bushfire smoke and health go to www.health.vic.gov.au/environment/bushfires.htm

<p>Unhealthy all</p> <p>≥ 40µg/m³ (24 hr av)</p>	<p>Excessive smoke levels can not only aggravate existing heart or lung conditions, but may generally cause irritated eyes, coughing or wheezing.</p> <p>Sensitive people including those with heart or lung conditions, children 14 years and younger, pregnant women and people over 65 years of age should avoid prolonged or heavy physical activity.</p> <p>Everyone else should reduce prolonged or heavy physical activity.</p> <p>Anyone with a heart or lung condition should take their medication as prescribed by their doctor.</p> <p>People with asthma should follow their asthma management plan.</p> <p>Anyone with concerns about their health should seek medical advice or call NURSE-ON-CALL on 1300 60 60 24.</p> <p>Check EPA's air quality reports at www.epa.vic.gov.au</p> <p>For further information about bushfire smoke and health go to www.health.vic.gov.au/environment/bushfires.htm</p>
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Very unhealthy all

$\geq 107\mu\text{g}/\text{m}^3$ (24 hr av)

Excessive smoke levels can not only aggravate existing heart or lung conditions, but may generally cause irritated eyes, coughing or wheezing.

Sensitive people including those with heart or lung conditions, children 14 years and younger, pregnant women and people over 65 years of age should **avoid all** physical activity outdoors.

Everyone else should **avoid prolonged or heavy** physical activity.

Anyone with a heart or lung condition should take their medication as prescribed by their doctor.

People with asthma should follow their asthma management plan.

Anyone with concerns about their health should seek medical advice or call NURSE-ON-CALL on 1300 60 60 24.

Check EPA's air quality reports at www.epa.vic.gov.au

For further information about bushfire smoke and health go to www.health.vic.gov.au/environment/bushfires.htm

Hazardous high

≥ 177 µg/m³ (24 hr av)

Excessive smoke levels can not only aggravate existing heart or lung conditions, but may generally cause irritated eyes, coughing or wheezing.

Sensitive people including those with heart or lung conditions, children 14 years and younger, pregnant women and people over 65 years of age should **remain indoors** and keep physical activity levels as low as possible. These sensitive groups should **consider taking a break from the smoke** by visiting a friend or relative outside the smoke-affected area.

Everyone else should **avoid all outdoor physical activity**.

Anyone experiencing symptoms which may be due to smoke exposure should consider taking a break away from the smoky conditions.

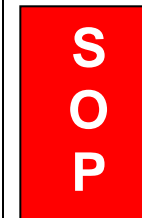
Anyone with a heart or lung condition should take their medication as prescribed by their doctor.

People with asthma should follow their asthma management plan.

Anyone with concerns about their health should seek medical advice or call NURSE-ON-CALL on 1300 60 60 24.

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For further information about bushfire smoke and health go to www.health.vic.gov.au/environment/bushfires.htm



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Hazardous extreme

≥ 250 µg/m³ (24 hr av)

Excessive smoke levels can not only aggravate existing heart or lung conditions, but may generally cause irritated eyes, coughing or wheezing.

Sensitive people including those with heart or lung conditions, children 14 years and younger, pregnant women and people over 65 years of age should **remain indoors** and keep physical activity levels as low as possible. These sensitive groups should **consider taking a break from the smoke** by visiting a friend or relative outside the smoke-affected area.

Should these conditions remain for prolonged periods (two or more days), further advice on temporary relocation may be issued for sensitive groups.

Everyone else should **avoid all outdoor physical activity**.

Anyone experiencing symptoms which may be due to smoke exposure should consider taking a break away from the smoky conditions.

Anyone with a heart or lung condition should take their medication as prescribed by their doctor.

People with asthma should follow their asthma management plan.

Anyone with concerns about their health should seek medical advice or call NURSE-ON-CALL on 1300 60 60 24.

Check EPA's air quality reports at www.epa.vic.gov.au/

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