

JOINT SOP	
Title	Managing significant community exposure to carbon monoxide from smoke
Purpose	To detail the arrangements between applicable agencies for the provision of air quality monitoring information and the process for communicating corresponding health protection messages to the affected community during a significant or prolonged event which generates carbon monoxide.
Scope	<p>This JSOP is intended to be used by officers at the Environment Protection Authority Victoria (EPA), the Department of Health and Human Services (DHHS), first responder agencies and Incident Controllers responsible for managing incidents which may generate significant concentrations of carbon monoxide, which has the potential to impact on air quality and therefore the health of the community.</p> <p>This Joint Standard Operating Procedure (JSOP) is applicable to large area smoke impacts where carbon monoxide may pose a health risk. It can be applied to single location events producing significant levels of carbon monoxide such as fires in coal mines, tyre stockpiles, or other industrial events (i.e. large scale, extended or complex incidents where smoke or emissions generated may impact the community). For such events, there may be other unique air quality hazards of equal or greater health concern than carbon monoxide, which may also require management through the use of additional specialised protocols.</p> <p>This JSOP does not address actions relating to management of occupational health issues which may be associated with exposure to carbon monoxide (i.e. first responder health and safety).</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
Content	<p>The procedural contents of this JSOP are:</p> <ul style="list-style-type: none"> • Step 1: Evaluate the situation • Step 2: Notify if trigger concentrations reached • Step 3: Assess information • Step 4: Provide advice <ul style="list-style-type: none"> • Schedule 1 Predicted hourly average of 27 ppm carbon monoxide – EPA not yet at site.

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	<ul style="list-style-type: none"> • Schedule 2: Predicted hourly average of 27 ppm carbon monoxide – EPA at site. • Schedule 3: Predicted hourly average of 33 ppm carbon monoxide – EPA not yet at site. • Schedule 4: Predicted hourly average of 33 ppm carbon monoxide – EPA at site. • Schedule 5: Predicted hourly average of 70 ppm carbon monoxide – EPA not yet at site. • Schedule 6: Predicted hourly average of 70 ppm carbon monoxide – EPA at site. • Schedule 7 – EPA to DHHS Incident Monitoring Report (CO).
Responsibilities	<p>EPA Duty Officer Responsible for notifying DHHS when trigger concentrations are reached and providing updated information during the incident.</p> <p>DHHS on-call officer Responsible for monitoring the DHHS Environmental Health pager and notifying the DHHS Health Risk Assessment Team when required.</p> <p>EPA Applied Science Officer (or Forecast Officer) Responsible for assessment and reporting of monitoring data and likely high smoke plume impact and duration.</p> <p>DHHS Health Risk Assessment Team Leader Responsible for assessment of monitoring information and providing advice to the Chief Health Officer on public health risks and community advice.</p> <p>DHHS Chief Health Officer Responsible for endorsing public health messages to be provided to the community.</p> <p>DHHS State Duty Officer Responsible for notifying the State Control Centre that public health messages endorsed by the Chief Health Officer need to be issued to the community.</p> <p>State Response Controller / Emergency Management Victoria (EMV) Duty Officer Responsible for notifying the Incident Controller that public health messages need to be issued via the warnings platforms (One Source One Message and Emergency Alert).</p> <p>Incident Controller Responsible for issuing advice and risk mitigation measures to the community.</p>
Definitions	Nil

PROCEDURE

Specific carbon monoxide trigger levels and process flows are specified in schedules 1-6. The following steps are to be used as a guide for assessment and decision making:

1. Evaluate the situation
 - 1.1 In accordance with JSOP 3.18 Incident Air Monitoring for community health
2. Notify if trigger concentrations reached
 - 2.1 EPA will notify DHHS when specified carbon monoxide concentrations have been triggered as per the Standard for Managing Exposure to Significant Carbon Monoxide Emissions.
3. Assess information
 - 3.1 EPA Applied Science Officer/Forecast Officer and Duty Officer will assess areas of high smoke plume impact and likely duration and provide report to DHHS.
 - 3.2 DHHS assess information and determine appropriate health risk mitigation measures and advice.
4. Provide advice
 - 4.1 Chief Health Officer authorises the provision of public health advice to the community (via the Health Risk Assessment Team Leader), where specific air quality triggers are met.
 - 4.2 Incident Controller authorises the issuing of information and warnings to the community via the warnings platforms (One Source One Message and Emergency Alert) and other warning methods.

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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

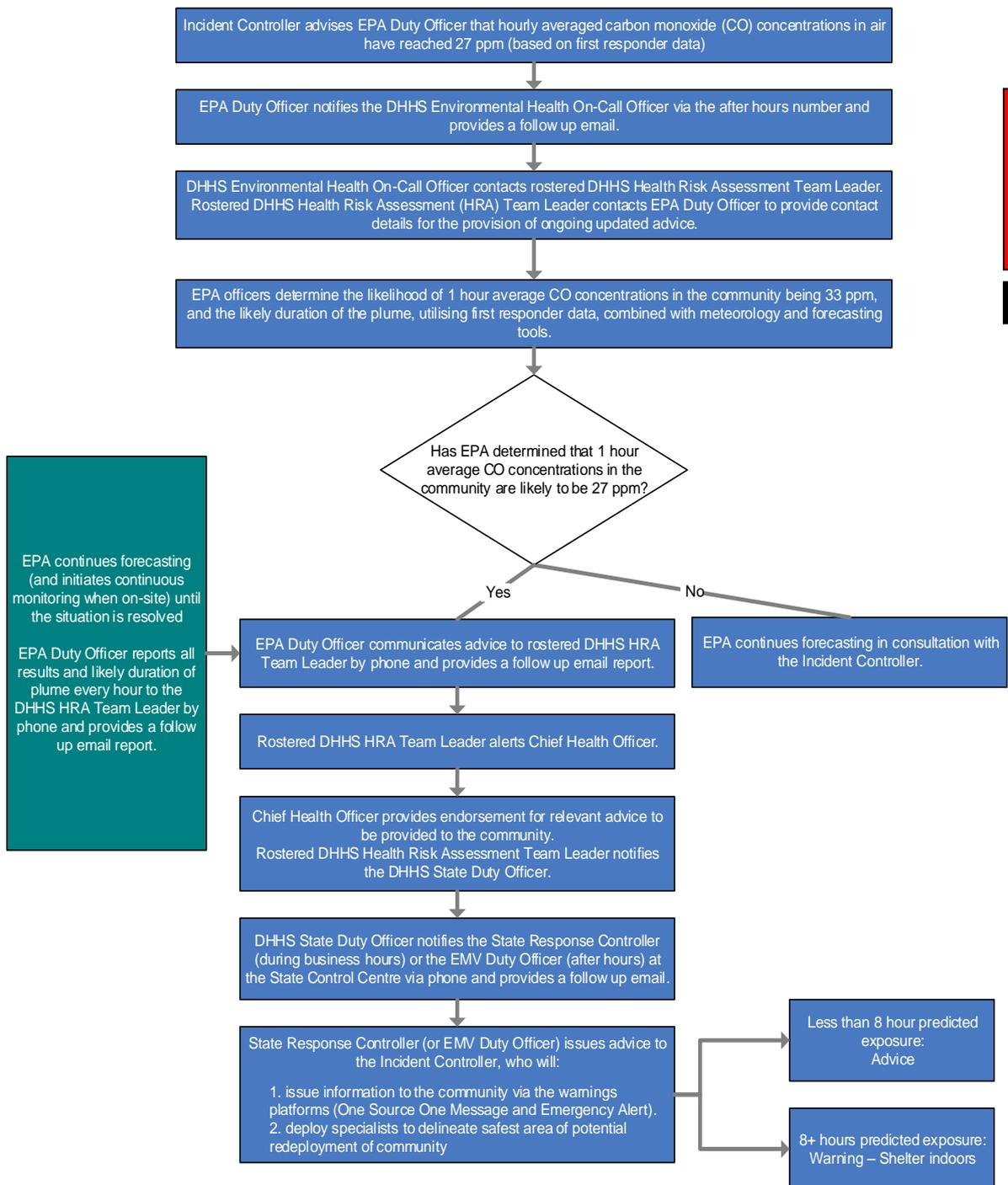
REFERENCE

Related Documents	Standard for Managing Exposure to Significant Carbon Monoxide Emissions: Version 2.0 (DHHS, EMV and EPA, July 2015) Rapid Deployment of Air Quality Monitoring for Community Health Guideline (EPA, EMV and DHHS, December 2015) SOP J03.18 Incident air quality monitoring for community health SOP J04.01 Incident public information and Warnings State Smoke Framework (December 2015)
Environment	Nil.

REVIEW		
Date Issue	12 November 2018	
Date Effective	1 December 2018	
Date to be Reviewed	September 2019	
Date to Cease	N/A	
AUTHORITY		
The Emergency Management Commissioner has issued this SOP under section 50 of the Emergency Management Act 2013.		
Approved	Signature	Date
Andrew Crisp Emergency Management Commissioner		
Endorsed	Signature	Date
Dr Brett Sutton Acting Chief Health Officer, DHHS		
Andrea Hinwood Chief Environmental Scientist, EPA		

Schedule 1

Predicted hourly average of 27ppm carbon monoxide – EPA not yet on site



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EPA continues forecasting (and initiates continuous monitoring when on-site) until the situation is resolved

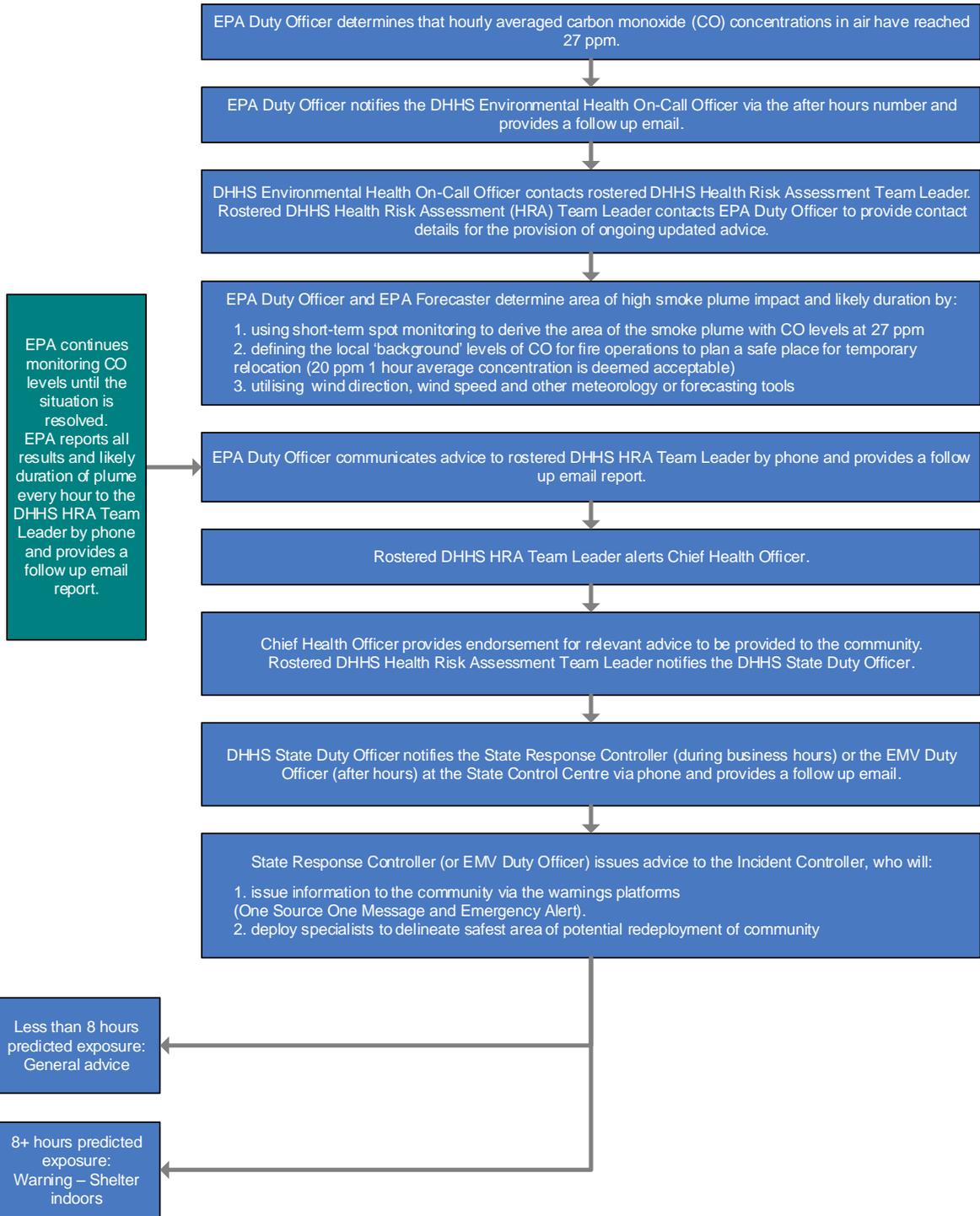
EPA Duty Officer reports all results and likely duration of plume every hour to the DHHS HRA Team Leader by phone and provides a follow up email report.

Schedule 2

Predicted hourly average of 27ppm carbon monoxide – EPA at site

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Notes:

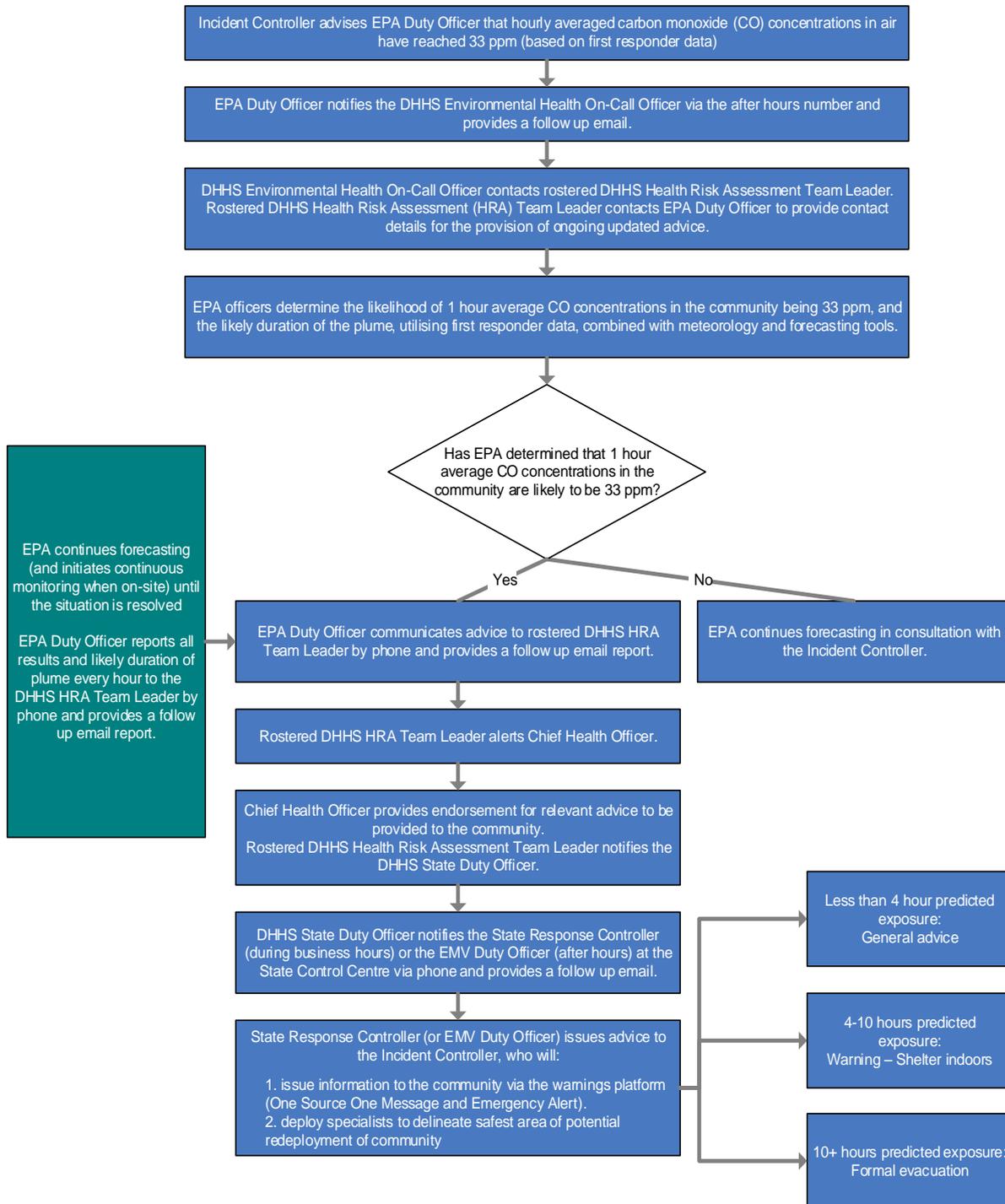
- 1 The aim of this procedure is to ensure that the community is not exposed to a 1 hour average carbon monoxide concentration of 27 ppm for 8 or more hours. This scenario assumes that EPA has continuous air quality monitoring in the community. As such, decisions on community advice are based on EPA's real time data combined with air quality forecasting.
- 2 This procedure relies on CO data from accurate and robust air quality monitoring equipment. If CO data is not available from Australian Standard air quality monitoring equipment (i.e. data has been generated from portable air quality monitoring instruments) then EPA will adjust the available data to ensure that a conservative and comparative value is provided to inform DHHS decision making.
- 3 The DHHS on-call officer can be contacted via the DHHS Environmental Health 24 hour after hours phone number: 1300 790 733. The initial phone call should be followed up with emails to: airquality@dhhs.vic.gov.au.
- 4 The State Response Controller (during business hours) and the EMV Duty Officer (after hours) can be contacted at the State Control Centre via the following 24 hour phone number: (03) 9032 3600. The initial phone call should be followed up with an email to: sccvic.sccmgr@scc.vic.gov.au (Manager/EMV Duty Officer) and sccvic.srctrl@scc.vic.gov.au (State Response Controller).

Schedule 3

Predicted hourly average of 33ppm carbon monoxide – EPA not yet on site

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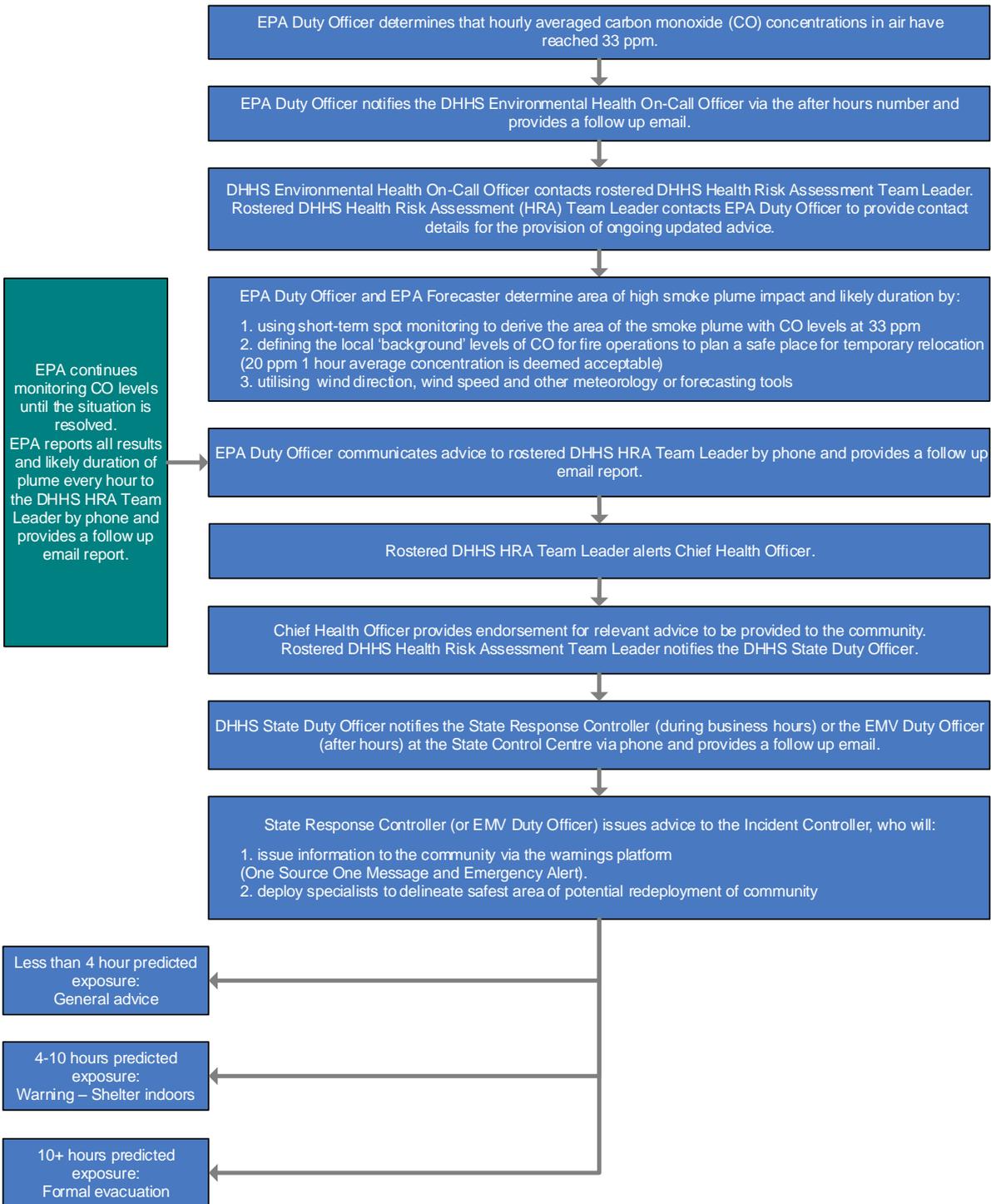
- 1 The aim of this procedure is to ensure that the community is not exposed to a 1 hour average carbon monoxide concentration of 33 ppm for 4 or more hours. This scenario assumes that EPA is in the process of deploying air quality monitoring equipment and supporting resources but has not yet arrived on site. As such, community air quality monitoring is not yet in place and decisions on community advice will be based on EPA expert analysis of first responder data combined with air quality forecasting.
- 2 This procedure relies on CO data from accurate and robust air quality monitoring equipment. If CO data is not available from Australian Standard air quality monitoring equipment (i.e. data has been generated from portable air quality monitoring instruments) then EPA will adjust the available data to ensure that a conservative and comparative value is provided to inform DHHS decision making.
- 3 The DHHS on-call officer can be contacted via the DHHS Environmental Health 24 hour after hours phone number: 1300 790 733. The initial phone call should be followed up with emails to: airquality@dhhs.vic.gov.au.
- 4 The State Response Controller (during business hours) and the EMV Duty Officer (after hours) can be contacted at the State Control Centre via the following 24 hour phone number: (03) 9032 3600. The initial phone call should be followed up with an email to: sccvic.sccmgr@scc.vic.gov.au (Manager/EMV Duty Officer) and sccvic.srctrl@scc.vic.gov.au (State Response Controller).

Schedule 4

Predicted hourly average of 33ppm carbon monoxide – EPA at site

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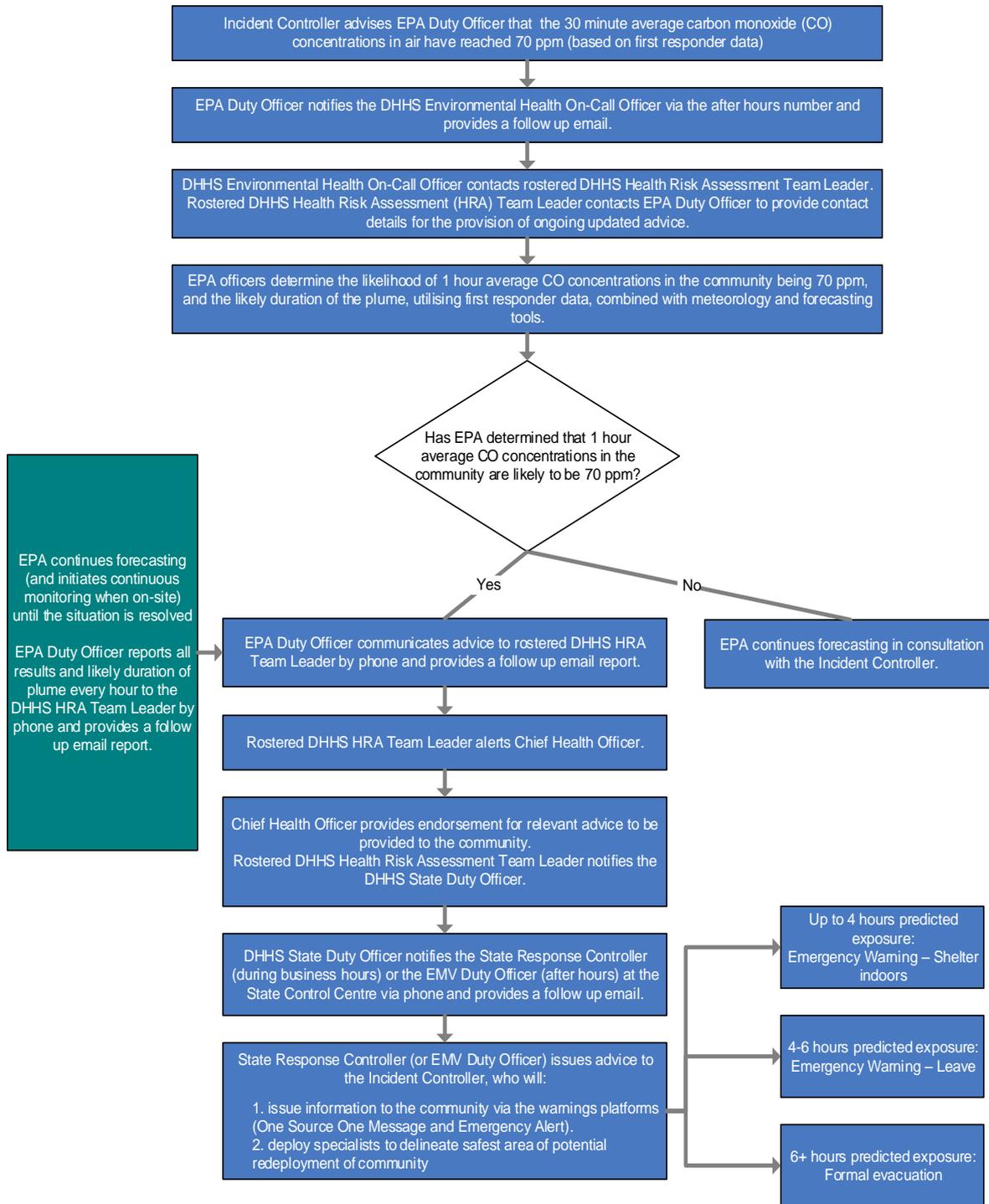
- The aim of this procedure is to ensure that the community is not exposed to a 1 hour average carbon monoxide concentration of 33 ppm for 4 or more hours. This scenario assumes that EPA has continuous air quality monitoring in the community. As such, decisions on community advice are based on EPA's real time data combined with air quality forecasting.
- This procedure relies on CO data from accurate and robust air quality monitoring equipment. If CO data is not available from Australian Standard air quality monitoring equipment (i.e. data has been generated from portable air quality monitoring instruments) then EPA will adjust the available data to ensure that a conservative and comparative value is provided to inform DHHS decision making.
- The DHHS on-call officer can be contacted via the DHHS Environmental Health 24 hour after hours phone number: 1300 790 733. The initial phone call should be followed up with emails to: airquality@dhhs.vic.gov.au.
- The State Response Controller (during business hours) and the EMV Duty Officer (after hours) can be contacted at the State Control Centre via the following 24 hour phone number: (03) 9032 3600. The initial phone call should be followed up with an email to: sccvic.sccmgr@scc.vic.gov.au (Manager/EMV Duty Officer) and sccvic.srctrl@scc.vic.gov.au (State Response Controller).

Schedule 5

Predicted hourly average of 70ppm carbon monoxide – EPA not yet on site

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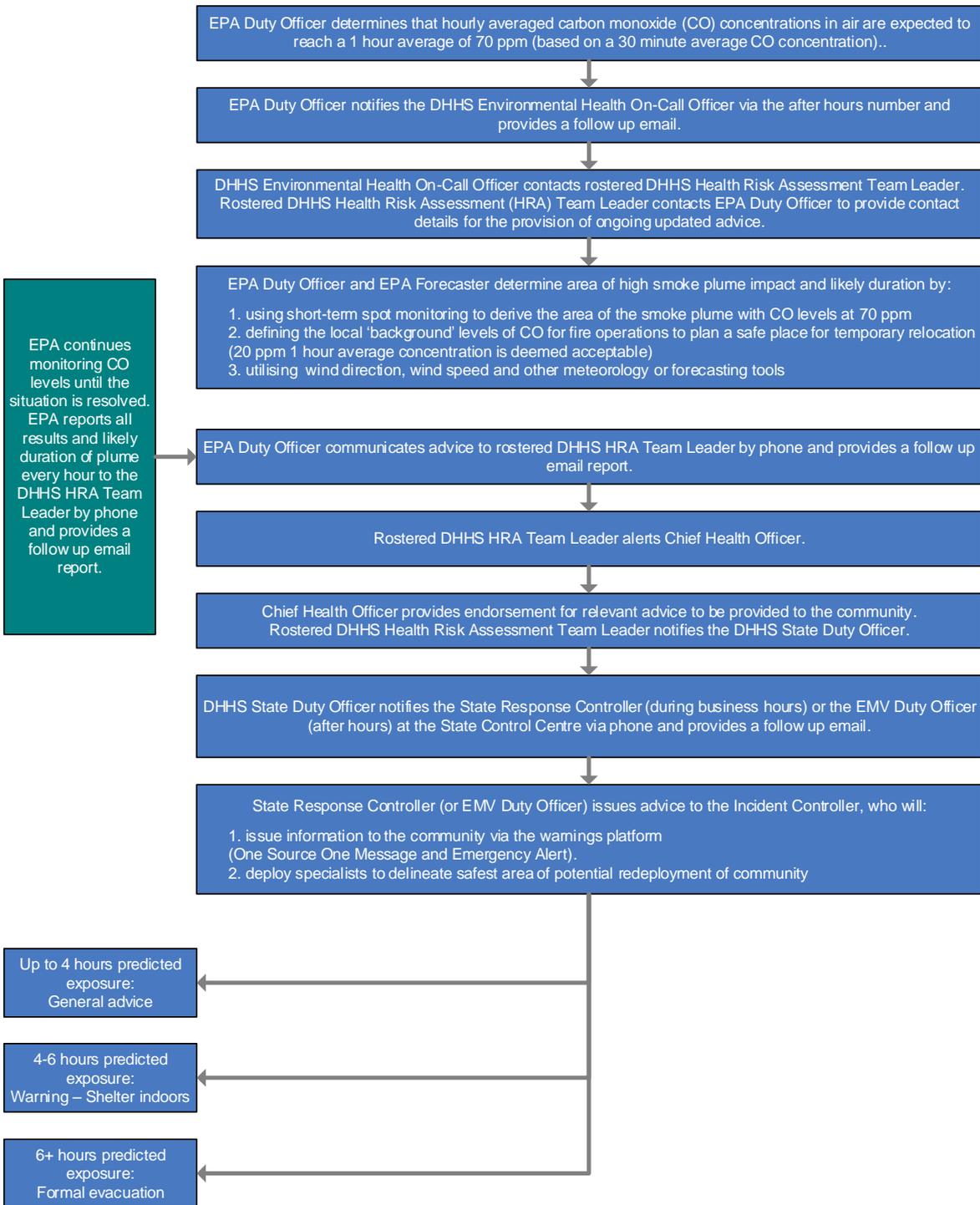
- 1 The aim of this procedure is to ensure that the community is not exposed to a 1 hour average carbon monoxide concentration of 70ppm. This scenario assumes that EPA is in the process of deploying air quality equipment and supporting resources but has not yet arrived on site. As such, community air quality monitoring is not yet in place and decisions on community advice will be based on EPA expert analysis of first responder data combined with air quality forecasting.
- 2 This procedure relies on CO data from accurate and robust air quality monitoring equipment. If CO data is not available from Australian Standard air quality monitoring equipment (i.e. data has been generated from portable air quality monitoring instruments) then EPA will adjust the available data to ensure that a conservative and comparative value is provided to inform DHHS decision making.
- 3 The DHHS on-call officer can be contacted via the DHHS Environmental Health 24 hour after hours phone number: 1300 790 733. The initial phone call should be followed up with emails to: airquality@dhhs.vic.gov.au.
- 4 The State Response Controller (during business hours) and the EMV Duty Officer (after hours) can be contacted at the State Control Centre via the following 24 hour phone number: (03) 9032 3600. The initial phone call should be followed up with an email to: scovic.sccmgr@scc.vic.gov.au (Manager/EMV Duty Officer) and scovic.srctrl@scc.vic.gov.au (State Response Controller).

Schedule 6

Predicted hourly average of 70ppm carbon monoxide – EPA at site

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Notes:

- 1 The aim of this procedure is to ensure that the community is not exposed to a 1 hour average carbon monoxide concentration of 70 ppm. This scenario assumes that EPA has continuous air quality monitoring in the community. As such, decisions on community advice are based on EPA's real time data combined with air quality forecasting.
- 2 This procedure relies on CO data from accurate and robust air quality monitoring equipment. If CO data is not available from Australian Standard air quality monitoring equipment (i.e. data has been generated from equipment that provides indicative measurements) then EPA will adjust the available data to ensure that a conservative and comparative value is provided to inform DHHS decision making.
- 3 The DHHS on-call officer can be contacted via the DHHS Environmental Health 24 hour after hours phone number: 1300 790 733. The initial phone call should be followed up with emails to: airquality@dhhs.vic.gov.au.
- 4 The State Response Coordinator (during business hours) and the State Duty Officer (after hours) can be contacted at the State Control Centre via the following 24 hour phone number: (03) 9032 3600. The initial phone call should be followed up with an email to: sccvic.sccmgr@scc.vic.gov.au (Manager/ State Duty Officer) and sccvic.srctrl@scc.vic.gov.au (State Response Controller).

Schedule 7

EPA to DHHS Incident Monitoring Report (CO)

Summary Situational Analysis:

Summary of the final advice to DHHS from EPA based on the standard noting that this advice requires clear prediction of likely plume duration/community exposure (as per schedules 1, 2, 3, 4, 5 & 6)

"It is EPA's Assessment that..."

Time/Date: 10 am Thursday 8th October 2015 [current time and date]

Version: 1 [each note sent through an incident is numbered sequentially]

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

Location: [Location of the incident]

Situation:

Commentary [give a brief simple synopsis of the event status in relation to smoke and potential community effects]

Weather:

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

Outlook:

Commentary [IMPORTANT any synopsis needs to predict against the appropriate schedule. Give a synopsis of what is expected over the next few hours, and perhaps next day, in relation to the weather and smoke effects]

Data:

CO monitor installed in the CFA yard and runs from 10pm on 7th October to 8am on 8th October [describe the data used, and how it has been collected – use the appropriate descriptors from the templates attached under Equipment Types below.

"EPA has adjusted the available data that was used to inform the summary situational analysis to ensure that a conservative and comparative value (to Australian Standard – i.e., reference standards) is provided to inform DHHS decision-making."

Map of area and monitoring locations:

[Include a location map(s) that clearly show where monitoring has occurred.]

Attached:

Time series for:-

1. Carbon Monoxide 1 hour – as measured.
2. Carbon Monoxide 4 hour rolling average – as measured.
3. Tables of any other data air collected (PM_{2.5} is covered under JSOP 03.19).

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Charts

[Insert charts as per templates with examples below] [do a separate chart for each and every monitor used]. [Note the occurrence of any trigger levels].

Equipment Type [select]

There are several different types of monitors and systems used by EPA for determining the smoke and contaminant concentrations during incidents. These are described below.

[Select appropriate instrument type(s) to include with the report].

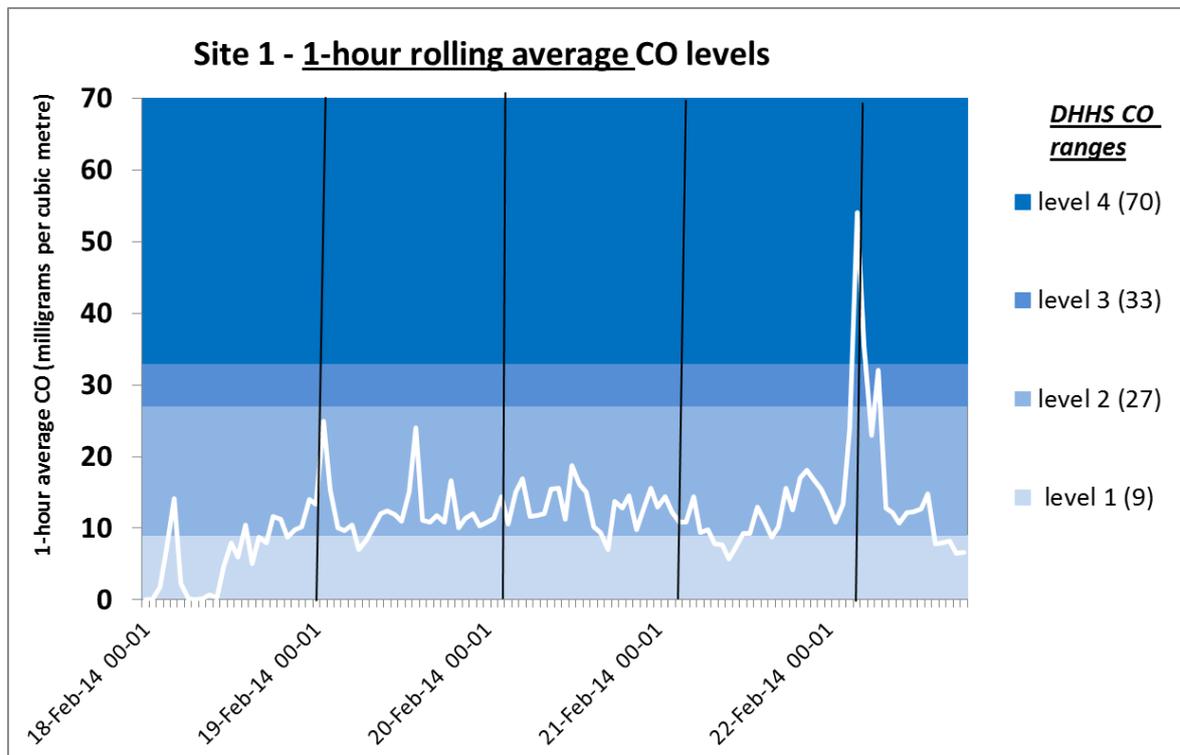
- (CO EPA network) – is an Australian Standard instrument for measuring carbon monoxide. Its nominal accuracy is +/- 0.2 ppm
- CO (EPA rapid response) – an Area RAE sensor with an estimated accuracy of +/- 1 ppm.
Cross-Calibrated? Yes / No
- CO (CFA/MFB) – an Area RAE sensor with an estimated accuracy of +/- 1 ppm.
Cross-Calibrated? Yes / No

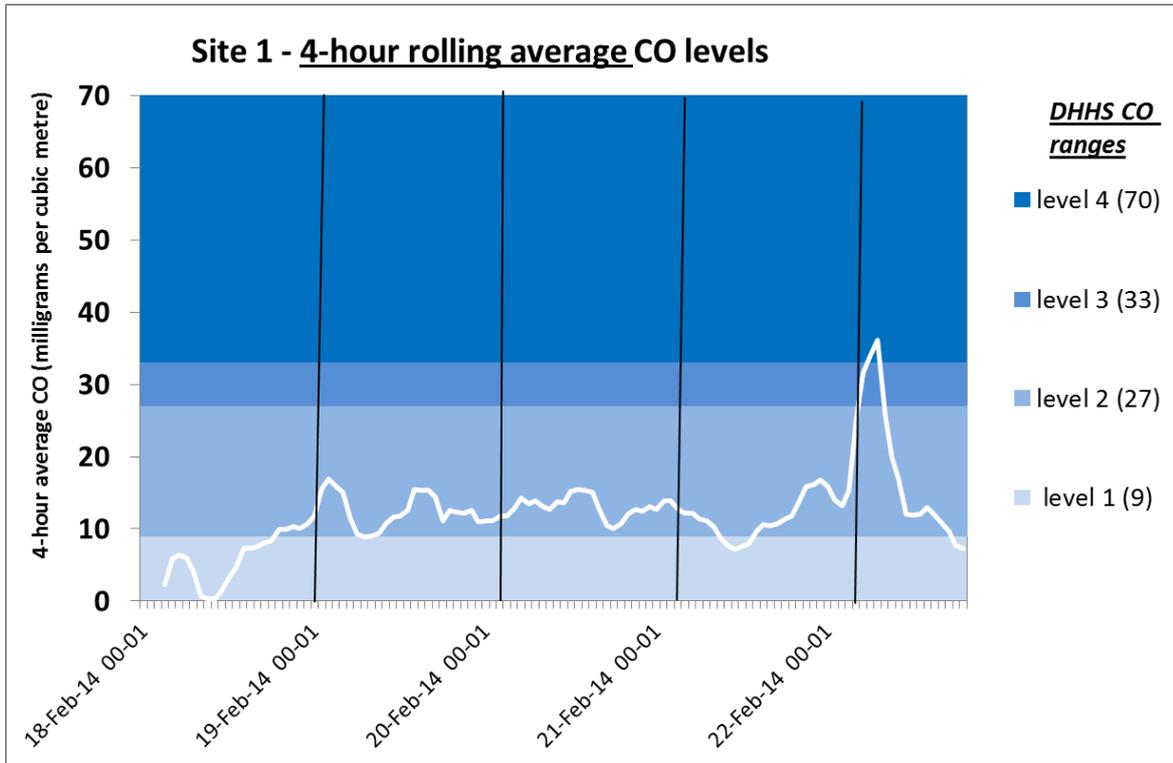
Note: MFB, CFA and EPA all have data quality management plans for all data acquisition.

Portable samplers used for citizen science – these are less sophisticated instruments that provide only basic indicative data about air quality, but can nonetheless add information.

The monitoring data is plotted up on Excel templates, and the format for CO data is:-

NOTE the time duration of the graphs need to align to the schedule being reported against





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Again the axes, time/date, and ranges can be easily scaled