

Our Ref: SU008273

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Department of the Legislative Council
Parliament of Victoria
Spring Street
EAST MELBOURNE VIC 3002

By email: epc.council@parliament.vic.gov.au

Dear Ms Smith

Inquiry into Recycling and Waste Management - matters taken on notice

Thank you for your email of 14 May on behalf of the Environment and Planning Committee regarding the evidence I provided on 3 May 2019 as part of the Committee's Inquiry into Recycling and Waste Management, and requests for further information which were taken on notice.

I am pleased to be able to provide EPA's response regarding the work of operational task forces in relation to stockpiling (see Attachment 1) for the Committee's information.

I can also confirm that no contracts have been entered into between EPA and Bradbury Industrial Services Pty Ltd (Bradbury's). EPA issued Bradbury's with a Pollution Abatement Notice requiring the company to process its wastes to bring its volumes under EPA licence limits, but this is not a contract.

EPA is currently reviewing the request for copies of EPA's board minutes and will provide you with a response on this matter in due course.

Additionally, during the hearing EPA's Chief Environmental Scientist, Dr Andrea Hinwood, also agreed to provide data from EPA's monitoring of both the West Footscray and Campbellfield fires. This information is enclosed (see Attachment 2).

Thank you again for the opportunity to provide evidence as part of the Committee's Inquiry into Recycling and Waste Management.

Yours sincerely

[REDACTED]
DR CATHY WILKINSON
CHIEF EXECUTIVE OFFICER
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H/S /2019



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Attachment 2 - Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

Contents

1. EPA Victoria’s Incident Air Monitoring Capability.....	2
2. Incident Example 1 – West Footscray fire	3
2.1 Latest EPA Internet Report.....	3
2.2 EPA Victoria Fact Sheets.....	8
Friday 19 October 2018.....	8
Monday 29 October 2018	11
Monday 12 November 2018	15
Friday 16 November 2018	20
Friday 21 December 2018	26
Friday 25 January 2019.....	31
Friday 15 February 2019	36
Wednesday 20 March 2019.....	39
2.3 Air Sampling Data.....	43
2.4 Summary of Air Quality	47
3. Incident Example 2 – The Bradbury’s Industrial Fire, Campbellfield.....	50
EPA Victoria Air Quality Reports.....	50
EPA Air Quality Report, 05 April 2019 12:00 pm.....	50
EPA Air Quality Report, 05 April 2019 4:00 pm.....	51
EPA Air Quality Report, 06 April 2019 10:00 am.....	54
EPA Victoria Science Advice Summary, 07 April 2019	57
EPA Victoria Sediment Quality Report, 12 April 2019.....	62
EPA Victoria Water Quality Report, 18 April 2019	64

1. EPA VICTORIA’S INCIDENT AIR MONITORING CAPABILITY

During an emergency where air pollution has potential to impact community, EPA can deploy incident air monitoring (IAM) equipment. IAM equipment can be deployed anywhere in the State of Victoria within 24 hours of being activated, has a small footprint and can be deployed using solar power or batteries. EPA has the capacity to deploy to three simultaneous incidents with multiple monitoring sites at each fire. The main parameter measured during an incident is PM2.5, however EPA has the capability to measure a large range of other gasses and metrological information based on the type of fire.

EPA’s IAM capability comprises portable equipment that is deployed by EPA staff and SES volunteers on EPA behalf from a number of Volunteer Units across the State. For prolonged pollution events, EPA has a small number of larger relocatable air quality monitoring stations that can be deployed to affected communities; this is referred to as Enhanced Air Monitoring (EAM).

Data from these monitors along with on ground observations, fire services data, forecasting and an understanding of likely fire duration assists EPA to provide expert advice to control agencies and decision makers to inform and protect the community from the harmful effects of smoke. This information is also shared with DHHS and the State Control Centre, who use the air quality data to support wider public health and consequence management actions.

EPA shares the data from deployed IAM equipment with the public via its AirWatch website for Fine Particles, Carbon Monoxide and Ozone: www.epa.vic.gov.au/airwatch. This helps to inform the community with near real-time data on air quality levels which compliments public information and warnings issued by the Control Agencies through the VicEmergency app. Where other air quality parameters are measured as part of an IAM deployment the data collected informs reporting and advice but is not displayed on AirWatch unless part of an EAM station.

Details of how community air quality monitoring is activated, and relevant monitoring responsibilities see EMV Joint Standard Operating Procedure 3:18 (Figure 1). For a summary of how air quality monitoring and advice is provided watch: https://www.youtube.com/watch?time_continue=27&v=xPidkABpVV8

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

Figure 1 – Expected Incident Response Times for IAM

Below are two examples of incidents that between them show EPA Victoria’s response at incidents and the types of information and data generated.

2. INCIDENT EXAMPLE 1 – WEST FOOTSCRAY FIRE

2.1 Latest EPA Internet Report

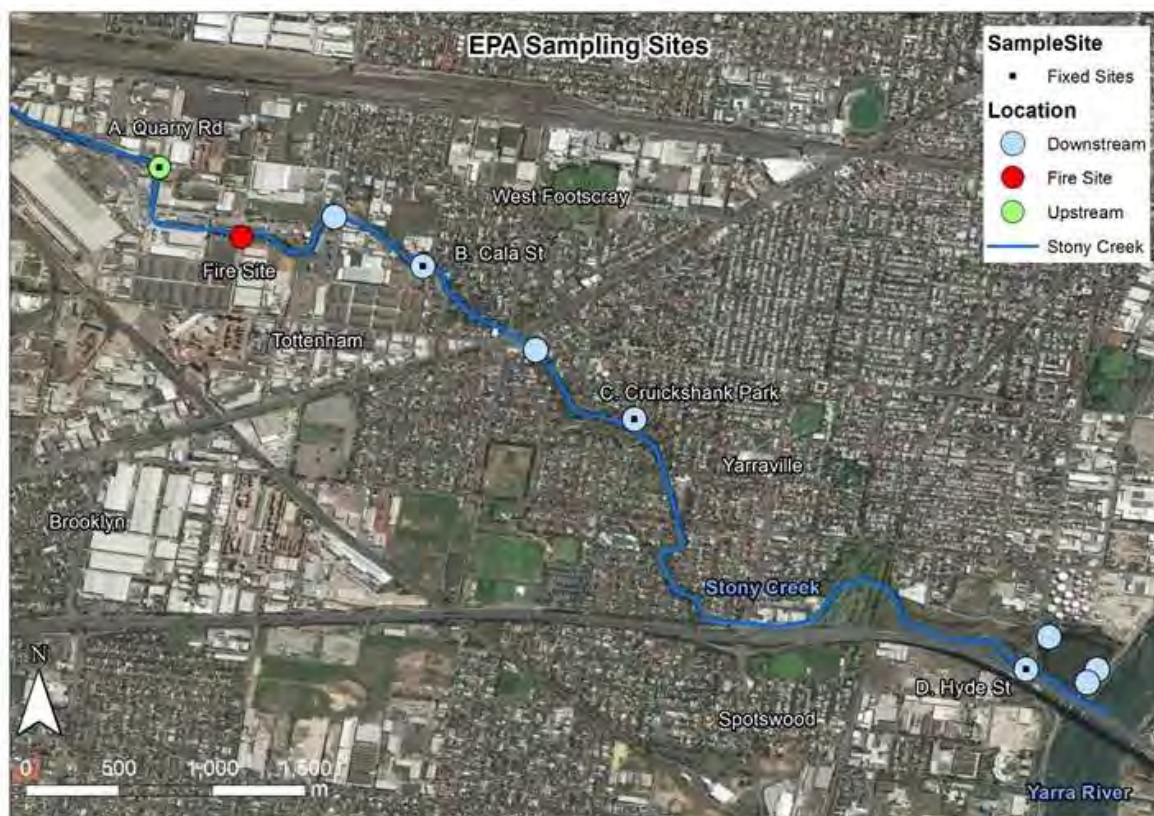
The information provided below is taken from the most recent update on the West Footscray fire currently available on EPA Victoria’s website.

Waterways around the West Footscray industrial fire

Wednesday 1 May 2019

Environment Protection Authority Victoria (EPA) is working closely with Maribyrnong City Council and Melbourne Water to restore Stony Creek and the surrounding environment as quickly as possible.

EPA continues to monitor the environment in the affected areas and provide advice around the potential human health impacts.



The blue line shows the local waterway Stony Creek.

Health information

The current advice is:

- The remediation work being conducted by Melbourne Water has removed most of the black sludge and contaminated water in or on the edge of the creek. But if you come into contact with contaminated water or sludge, remove wet clothing and wash the relevant areas of your body that have touched it with warm soapy water.

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

- Water quality is much improved and similar to water quality before the fire, but we recommend avoiding contact with water in Stony Creek as the sediment is still contaminated and may pollute the water if disturbed.
- Any recent rain may mobilise contaminants along Stony Creek, so avoid contact with water in Stony Creek and any signs of oily sheen or contamination along the waterline.
- Odour levels from the creek have decreased but are still present at times. Avoid the odour if it makes you feel unwell.
- As a precaution avoid eating fish from Stony Creek.
- Don’t let pets swim in the area or drink the water.
- Seek medical help if you feel unwell.

Environmental monitoring

Water quality

This update includes water quality data from 30 August 2018 to the most recent available test results, collected on 4 April 2019.

Overview

We have tested water for a range of pollutants from the Stony Creek area and continue to advise not to eat fish taken from Stony Creek. However, based on the results of testing of water quality, there are no concerns regarding fishing and other recreational activities in the Lower Yarra River and Hobsons Bay. We advise avoiding contact with the water and sludge in Stony Creek and to keep pets from swimming or drinking the water.

Past results have shown that a range of industrial chemical solvents, detergents and fire soot particles were washed into Stony Creek. The key chemicals detected were phenol (an industrial chemical and cleaning product), polyaromatic hydrocarbons (fire and soot by-products), lighter petroleum hydrocarbon chemicals called BTEX (benzene, toluene, ethylbenzene and xylene), PFAS, and industrial solvents such as acetone and butanone.

Concentrations of these chemicals were very high in Stony Creek on Thursday 30 August and caused rapid death of fish and aquatic life in Stony Creek and in some cases exceeded human health recreational contact guidelines for several days after the fire. Concentrations of these chemicals have declined significantly over time.

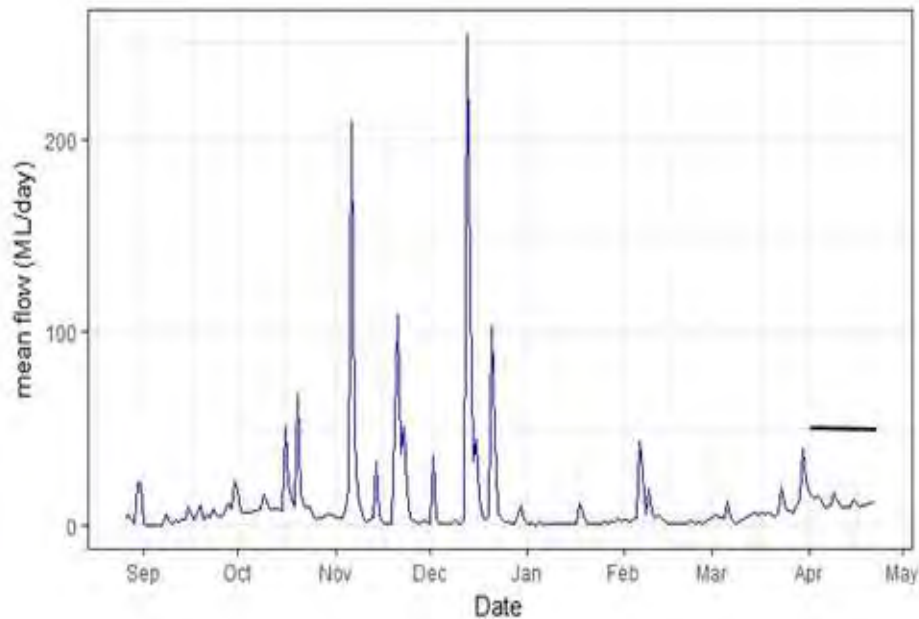
Latest results

Conditions in Stony Creek have improved considerably since the fire due to dilution by creek flows, chemical degradation and clean up undertaken by Melbourne Water. Heavy rainfall and creek flows during November and December helped to dilute and flush the creek of water-borne contaminants, and aided in the movement of contaminated sediments downstream. The latest results show that water quality in Stony Creek meets human health water quality guidelines for recreational contact.

Melbourne Water began removing contaminated sediments via dredging from sections of Stony Creek downstream of the fire site on 1 April 2019. The figure below shows Stony Creek mean daily flows (ML/day) measured at the Spotswood gauging station (Bena St, Yarraville) from 26/08/2018 to 22/04/2019. The black horizontal bar indicates the period of dredging

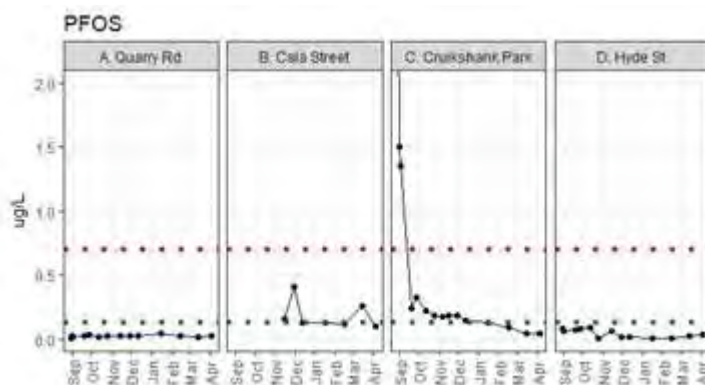
Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

undertaken by Melbourne Water in Stony Creek.

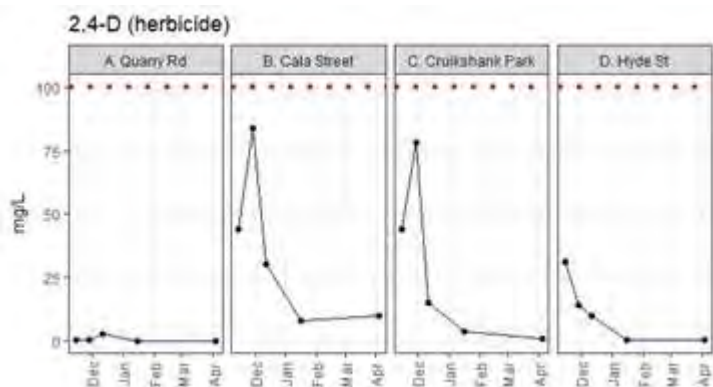


Results from regular water quality monitoring at fixed sites in Stony Creek

Results for the persistent chemicals perfluorooctanesulfonic acid (PFOS) and the herbicide 2,4-D upstream of the fire site (Quarry Rd) and three sites downstream of the fire site at Cala St, Cruickshank Park and Hyde St from 30/8/2018 to 04/04/2019 are shown below. The red and green lines indicate recreational water quality and aquatic ecosystem guidelines, respectively. These show that the two recent samplings are similar to previous samplings. Note, the high PFOS levels recorded on 30/08/2018 downstream of the fire site are not displayed on this figure to aid interpretation. Chemicals presented in previous updates of water quality occurred below detectable levels or reporting and are not presented (e.g. BTEX chemicals benzene, ethylene, toluene and xylene, acetone, methylethylketone, and phenol). Note that even though these chemicals will no longer be presented in these reports, EPA will continue to measure and assess these chemicals to ensure they remain below relevant guidelines.



Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires



Sediment quality

This update includes sediment quality data from 11 September to the most recent available test results collected on 4 April 2019. This update reports on how sediment conditions have changed over time since the fire.

Overview

EPA has tested sediment at fixed locations for a range of pollutants from the Stony Creek area since 11/9/2018. Although in most cases contaminant levels in the sediment have declined, disturbing the sediments would mobilise contaminants and could increase the risk of harm to the environment and human health. EPA continues to advise to avoid contact with the creek in Cruickshank Park until further notice.

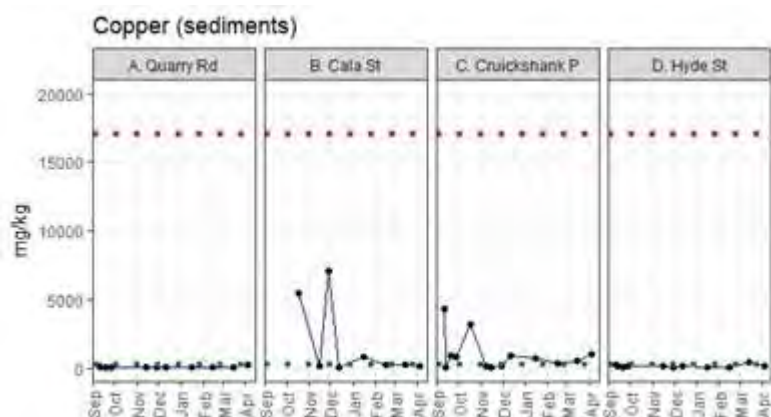
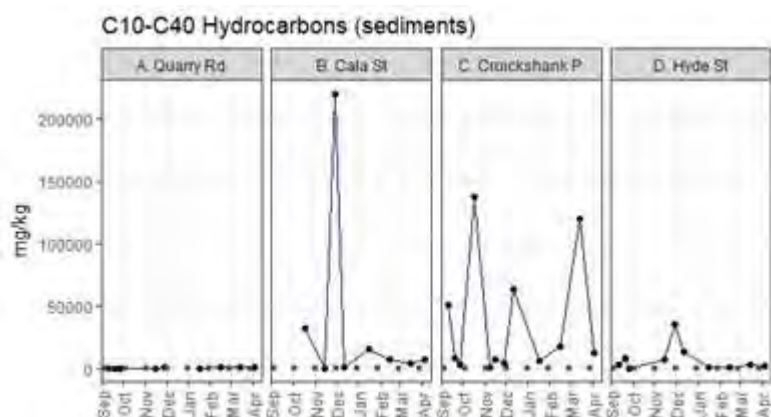
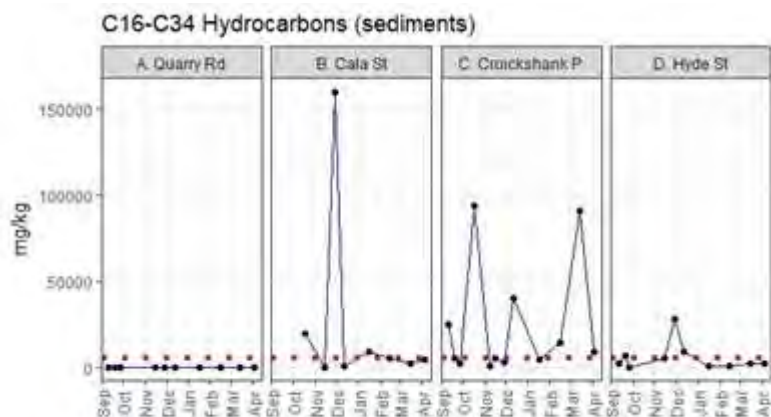
Latest Results

Concentrations of C16-C34 hydrocarbons in sediment exceeded human health guidelines for recreational contact at Cruickshank Park when sampled on 4 April 2019. Concentrations of C10-C40 hydrocarbons in sediments continued to exceed environmental guidelines at sites downstream of the fire and remained significantly above background levels recorded upstream of the fire at Quarry Road. Concentrations of copper in sediments continued to remain above environmental guidelines at Cruickshank Park on 4 April 2019. The high variation in sediment contaminant levels over time at Cala St and Cruickshank Park may reflect the movement of contaminated sediments during high flow events.

Results from regular sediment quality monitoring at fixed sites in Stony Creek

Results for the C16-C34 and C10-C40 hydrocarbon fractions and copper in sediments sampled upstream of the fire site (Quarry Rd) and downstream of the fire site at Cala St, Cruickshank Park and Hyde St from 11/09/2018 to 04/04/2019. The red line indicates human health guidelines for recreational contact with sediments. These results show that the sediments at Cruickshank Park continue to have very variable levels of hydrocarbons while the sediments at the other sites are similar to previous samplings. The green lines indicate aquatic ecosystem guidelines for sediments. Other chemicals presented in previous updates occurred below relevant guidelines and are not presented here (e.g. C6-C10 hydrocarbons and PFOS). Note that even though these chemicals will no longer be presented in these reports, EPA will continue to measure and assess these chemicals to ensure they remain below relevant guidelines.

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires



Air quality

Since the fire, some odour has been detected along Stony Creek from residual chemicals from the fire. The latest air monitoring results are for 11-12 May 2019 in response to a rain event.

EPA deployed canisters to measure volatile organic compounds (VOCs) at Stony Creek in Park Avenue, West Footscray for a 24-hour period extending over 11/05/2019 and 12/05/2019.

The VOCs detected and the concentrations measured are reported in the table below. The sampling results show the VOCs detected were measured at low levels and well below the health impact criteria. Although the VOC levels measured in air is low, you may still experience

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

instances of odour because these chemicals can be smelt at concentrations below the health impact criteria.

The chemical odour in this area is due to the vapours or VOCs coming from the chemicals in the creek from the water run-off from the fire site. The 24-hour VOCs results were compared against the Agency for Toxic Substances and Disease Registry Minimal Risk Levels (ATSDR MRLs). ATSDR MRL is for time periods of 1 to 14 days.

Summary of **24-hour** VOCs results for 11/05/2018 - 12/05/2019 (no exceedances).

Compounds ($\mu\text{g}/\text{m}^3$)	AQ guideline			Stony Creek at Park Avenue, West Footscray
	ATSDR (1-14 days ($\mu\text{g}/\text{m}^3$))	Acute	MRL	
1.2.4-Trimethylbenzene	NG			<4
Acetone	61,763			<20
Ethanol	NG			52
Ethylbenzene	21,711			<4
m.p-Xylene	NG			<4.4
o-Xylene	NG			<4
Toluene	7,537			<7.5
Xylenes - Total	8,684			<6.6

NG = No guideline values available.

The following data below is taken from Fact Sheets prepared by EPA Victoria from 19 October 2018 – 20 March 2019 on the Tottenham fire and shows results of earlier monitoring. This is then followed by a summary of the air sampling results for VOCs and asbestos at sampling sites on the day of the fire (VOCs only) and during September 2018, and finally by air quality from 30 August to 6 September 2018.

2.2 EPA Victoria Fact Sheets

Friday 19 October 2018

Environmental monitoring

Volatile Organic Compounds (VOC)

VOCs are a large group of chemicals containing carbon and give off vapours into the air. This includes chemicals such as ethanol, acetone, xylene, benzene and toluene. VOCs have a low

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

odour threshold and can be smelt even at low concentrations. It is VOCs that can sometimes be smelt near Stony Creek.

Long term health effects are not expected from short term exposures to VOCs.

Volatile Organic Compounds (VOC) air sampling along Stony Creek

Air samples have been collected and analysed in residential and sensitive areas near Stony Creek. Any chemical odour in this area was due to the vapours or VOCs coming from the chemicals in the creek from the water run-off from the fire site.

Levels of VOCs in the air sampled have all been well below health guideline levels.

Asbestos

There was asbestos containing building materials at the site of the fire and so 24-hour airborne asbestos sampling and testing was first carried out on 31 August 2018 at various locations near the fire site. Further samples have been taken over a 24-hour period on another four occasions.

Results from asbestos monitoring so far have all been below the limit of detection.

Future airborne asbestos monitoring will be done when high winds are forecast by the bureau of meteorology and during major demolition and clean-up activities.

Particles

While burning, large amounts of smoke was generated by the fire. EPA monitored the levels of fine particles (PM_{2.5}) near the fire at Footscray, Altona and Brooklyn, as part of EPA’s standard air monitoring network.

The 24-hr average levels of fine particles during the fire did not reach unhealthy levels in the community.

Water quality monitoring

EPA has tested water for a range of pollutants from the Stony Creek area and continues to advise not to eat fish taken from Stony Creek. However, based on water quality data, there are no concerns regarding fishing and other recreational activities in the Lower Yarra River and Hobsons Bay. EPA advises to avoid contact with the water and sludge in Stony Creek and to keep pets from swimming in it.

The results show that a range of industrial chemical solvents, detergents and fire soot particles were washed into Stony Creek. The key chemicals detected were phenol (an industrial chemical and cleaning product), polyaromatic hydrocarbons (fire and soot by-products), chemicals called BTEX (benzene, toluene, ethylbenzene and xylene), PFAS, and industrial solvents such as acetone and butanone.

Concentrations of these chemicals were very high in Stony Creek on Thursday 30 August and caused rapid death of fish and aquatic life in Stony Creek and in some cases exceeded human health recreational contact guidelines for several days after the fire.

Conditions in Stony Creek have improved considerably since then due to dilution by creek flows, chemical degradation and clean up undertaken by Melbourne Water, including pumping water from the creek.

The latest water results show that water quality for Cruickshank Park and Hyde street is below human health recreational water quality guidelines for recreational contact. However,

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

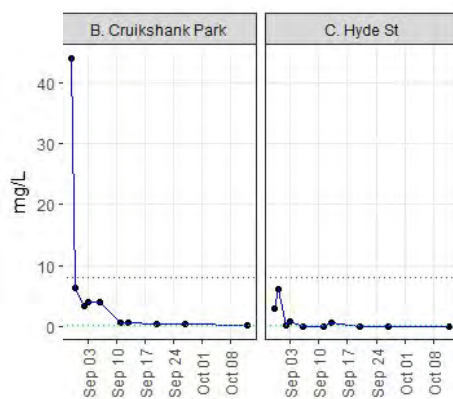
concentrated oil on the surface of the sediment as well as odour is still present in Cruickshank Park and any disturbance of the sediments immediately causes a noticeable sheen.

EPA continues to advise that contact with sediments within the creek and with any remaining sludge covering the surfaces of plants at the edge of the creek be avoided until further notice.

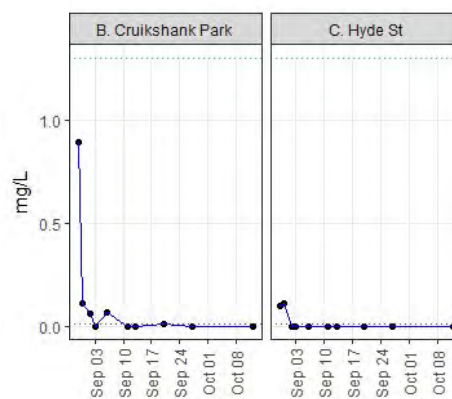
West Footscray Fire – results from water quality monitoring

Monocyclic aromatic hydrocarbons (MAH) at two downstream sites from 30/8/2018 to 12/10/2018. The red and green lines indicate recreational water quality and aquatic ecosystem guidelines, respectively.

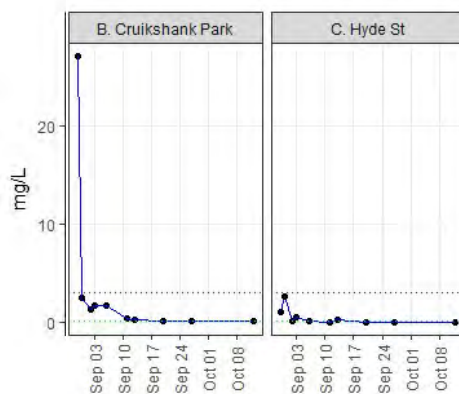
Toluene



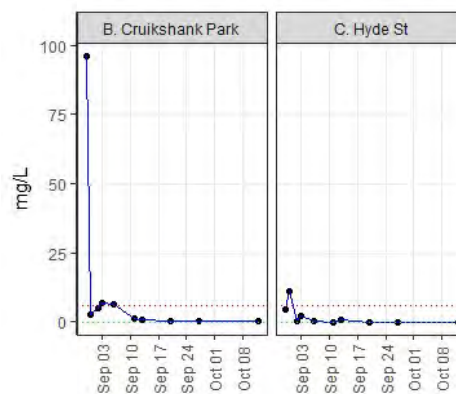
Benzene



Ethylbenzene



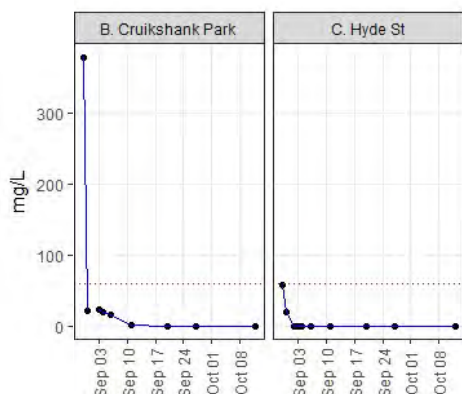
Xylene



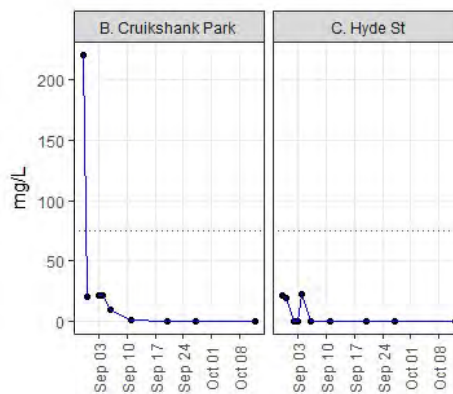
Acetone, methylethylketone, phenol and PFOS at two downstream sites from 30/8/2018 to 12/10/2018. The red and green lines indicate recreational water quality and aquatic ecosystem guidelines, respectively.

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

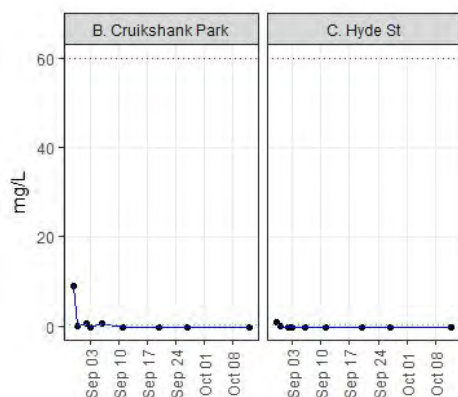
Acetone



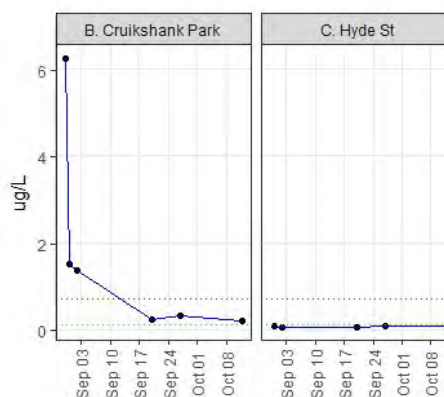
Methylethylketone



Phenol



PFOS



Monday 29 October 2018

Environmental monitoring

Volatile Organic Compounds (VOC)

VOCs are a large group of chemicals containing carbon and give off vapours into the air. This includes chemicals such as ethanol, acetone, xylene, benzene and toluene. VOCs have a low odour threshold and can be smelt even at low concentrations. It is VOCs that can sometimes be smelt near Stony Creek.

Long term health effects are not expected from short term exposures to VOCs.

Volatile Organic Compounds (VOC) air sampling along Stony Creek

Air samples have been collected and analysed in residential and sensitive areas near Stony Creek. Any chemical odour in this area was due to the vapours or VOCs coming from the chemicals in the creek from the water run-off from the fire site.

Levels of VOCs in the air sampled have all been well below health guideline levels.

Asbestos

There was asbestos containing building materials at the site of the fire and so 24-hour airborne asbestos sampling and testing was first carried out on 31 August 2018 at various locations near the fire site. Further samples have been taken over a 24-hour period on another four occasions.

Results from asbestos monitoring so far have all been below the limit of detection.

Future airborne asbestos monitoring will be done when high winds are forecast by the Bureau of Meteorology during major demolition and clean-up activities.

Particles

While burning, large amounts of smoke was generated by the fire. EPA monitored the levels of fine particles (PM2.5) near the fire at Footscray, Altona and Brooklyn, as part of EPA’s standard air monitoring network.

The 24-hr average levels of fine particles during the fire did not reach unhealthy levels in the community.

Water quality

This update includes water quality data from 30 August to the most recent available test results collected on 12 October.

EPA has tested water for a range of pollutants from the Stony Creek area and continues to advise not to eat fish taken from Stony Creek. However, based on the results of testing of water quality, there are no concerns regarding fishing and other recreational activities in the Lower Yarra River and Hobsons Bay. EPA advises to avoid contact with the water and sludge in Stony Creek and to keep pets from swimming in it.

The results show that a range of industrial chemical solvents, detergents and fire soot particles were washed into Stony Creek. The key chemicals detected were phenol (an industrial chemical and cleaning product), polyaromatic hydrocarbons (fire and soot by-products), chemicals called BTEX (benzene, toluene, ethylbenzene and xylene), PFAS, and industrial solvents such as acetone and butanone.

Concentrations of these chemicals were very high in Stony Creek on Thursday 30 August and caused rapid death of fish and aquatic life in Stony Creek and in some cases exceeded human health recreational contact guidelines for several days after the fire.

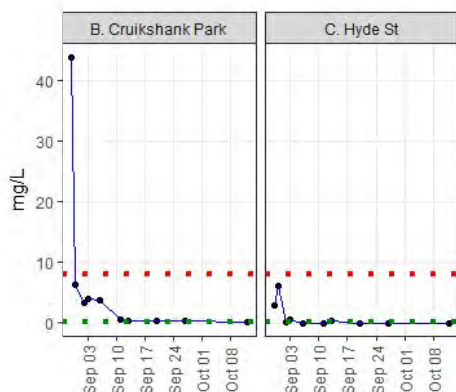
Conditions in Stony Creek have improved considerably since then due to dilution by creek flows, chemical degradation and clean up undertaken by Melbourne Water, including pumping water from the creek. The latest testing shows that water quality for Cruickshank Park and Hyde street is generally good and below human health recreational water quality guidelines for recreational contact. However, concentrations of toluene, ethylbenzene and xylene in the water remain above aquatic ecosystem guidelines, which are much lower than the human health guidelines.

West Footscray Fire – results from water quality monitoring

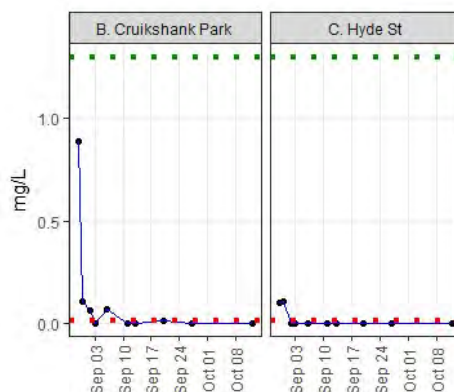
Monocyclic aromatic hydrocarbons (MAH), at two downstream sites from 30/8/2018 to 12/10/2018. The red and green lines indicate recreational water quality and aquatic ecosystem guidelines, respectively.

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

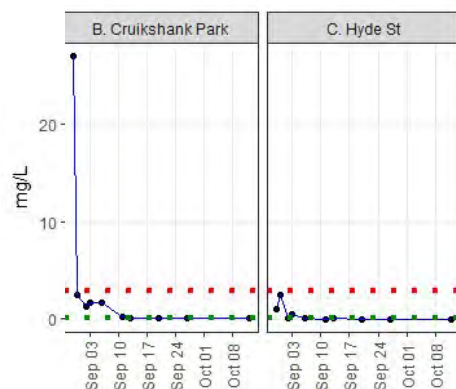
Toluene



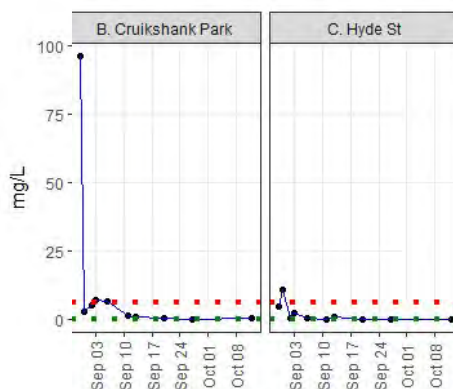
Benzene



Ethylbenzene

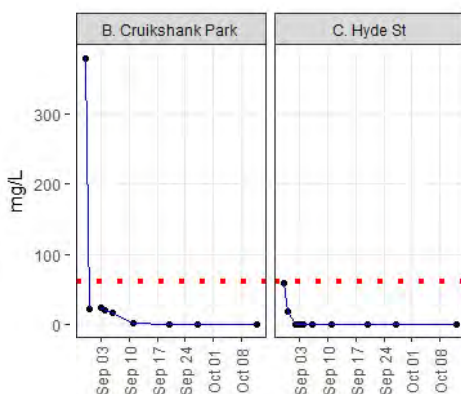


Xylene

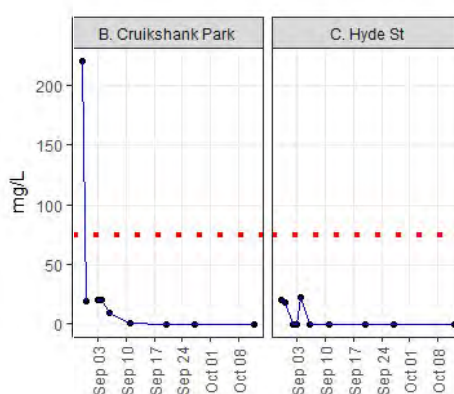


Acetone, methylethylketone, phenol and PFOS at two downstream sites from 30/8/2018 to 12/10/2018. The red and green lines indicate recreational water quality and aquatic ecosystem guidelines, respectively. Note, acetone and methylethylketone do not have aquatic ecosystem guidelines.

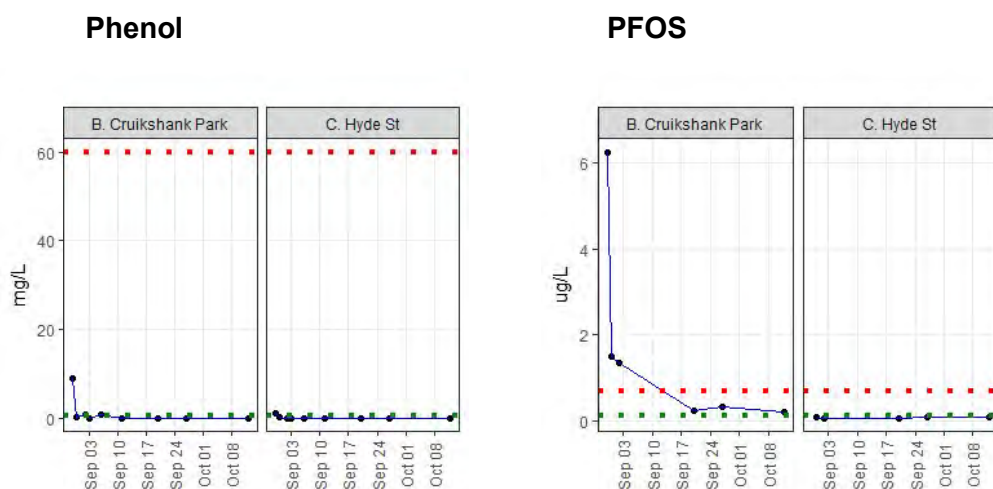
Acetone



Methylethylketone



Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires



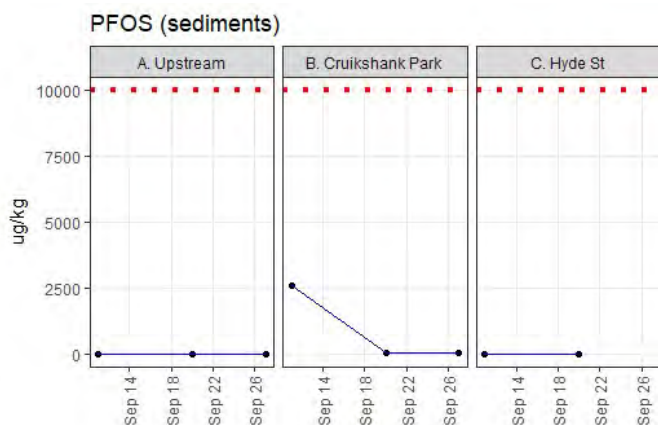
Sediment quality

This update includes sediment quality data from 11 September to the most recent available test results collected on 27 September.

EPA has tested sediments for a range of pollutants from the Stony Creek area since 11/9/2018. Initially concentrations of hydrocarbons in sediments in Stony Creek at Cruickshank Park were above human health recreational water quality guidelines. The latest testing results (27/9/2018) shows that sediment contamination has improved considerably and levels of hydrocarbons are now below guidelines for recreational contact. Concentrations of copper and C10-C40 hydrocarbons were initially high in sediments at Cruickshank Park following the fire and remain above aquatic ecosystem guidelines for sediments. Although contaminant levels in the sediment have declined, disturbing the sediments would mobilise contaminants and could increase the risk of harm to the environment and human health if touched. EPA continues to advise to avoid contact with the creek in Cruickshank Park until further notice.

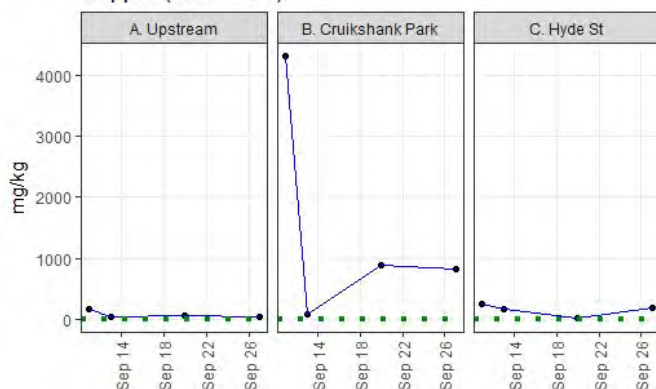
Results from sediment quality monitoring

PFOS, copper and C6-C10 (which includes the BTEX chemicals) and C10-C40 hydrocarbons in sediments at site upstream of the fire and two downstream locations from 11/9/2018 to 27/9/2018. The red lines for PFOS and C6-C10 hydrocarbons indicate recreational water quality guidelines. The green lines for copper and C10-C40 hydrocarbons indicate and aquatic ecosystem guidelines.

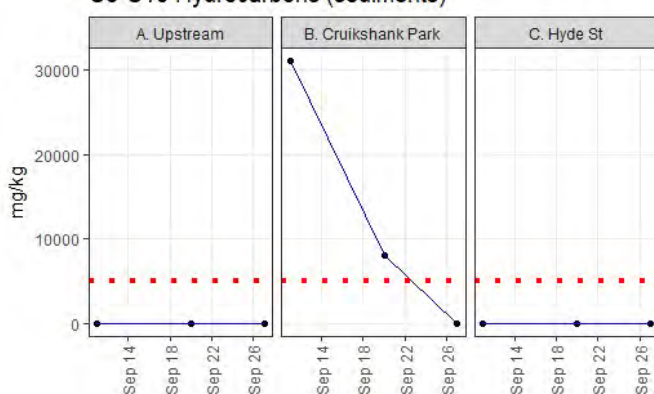


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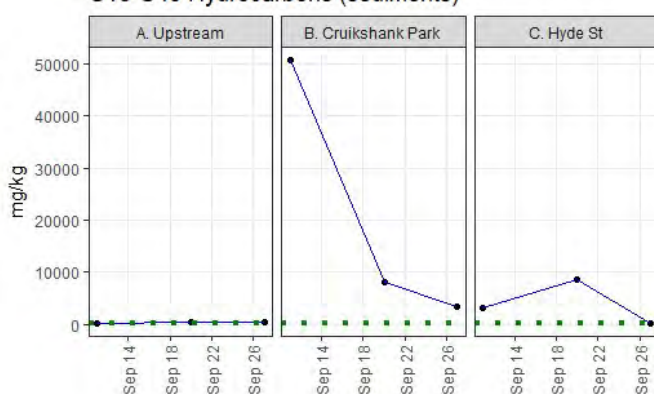
Copper (sediments)



C6-C10 Hydrocarbons (sediments)



C10-C40 Hydrocarbons (sediments)



Monday 12 November 2018

Environmental monitoring

Volatile Organic Compounds (VOC)

VOCs are a large group of chemicals containing carbon and give off vapours into the air. This includes chemicals such as ethanol, acetone, xylene, benzene and toluene. VOCs have a low odour threshold and can be smelt even at low concentrations. It is VOCs that can sometimes be smelt near Stony Creek.

Long term health effects are not expected from short term exposures to VOCs.

Volatile Organic Compounds (VOC) air sampling along Stony Creek

Air samples have been collected and analysed in residential and sensitive areas near Stony Creek. Any chemical odour in this area was due to the vapours or VOCs coming from the chemicals in the creek from the water run-off from the fire site.

Levels of VOCs in the air sampled have all been well below health guideline levels.

Asbestos

There was asbestos containing building materials at the site of the fire and so 24-hour airborne asbestos sampling and testing was first carried out on 31 August 2018 at various locations near the fire site. Further samples have been taken over a 24-hour period on another four occasions.

Results from asbestos monitoring so far have all been below the limit of detection.

Future airborne asbestos monitoring will be done when high winds are forecast by the Bureau of Meteorology during major demolition and clean-up activities.

Particles

While burning, large amounts of smoke was generated by the fire. EPA monitored the levels of fine particles (PM_{2.5}) near the fire at Footscray, Altona and Brooklyn, as part of EPA’s standard air monitoring network.

The 24-hr average levels of fine particles during the fire did not reach unhealthy levels in the community.

Water quality

This update includes water quality data from 30 August to the most recent available test results collected on 25 October.

EPA has tested water for a range of pollutants from the Stony Creek area and continues to advise not to eat fish taken from Stony Creek. However, based on the results of testing of water quality, there are no concerns regarding fishing and other recreational activities in the Lower Yarra River and Hobsons Bay. EPA advises to avoid contact with the water and sludge in Stony Creek and to keep pets from swimming in it.

The results show that a range of industrial chemical solvents, detergents and fire soot particles were washed into Stony Creek. The key chemicals detected were phenol (an industrial chemical and cleaning product), polyaromatic hydrocarbons (fire and soot by-products), chemicals called BTEX (benzene, toluene, ethylbenzene and xylene), PFAS, and industrial solvents such as acetone and butanone.

Concentrations of these chemicals were very high in Stony Creek on Thursday 30 August and caused rapid death of fish and aquatic life in Stony Creek and in some cases exceeded human health recreational contact guidelines for several days after the fire.

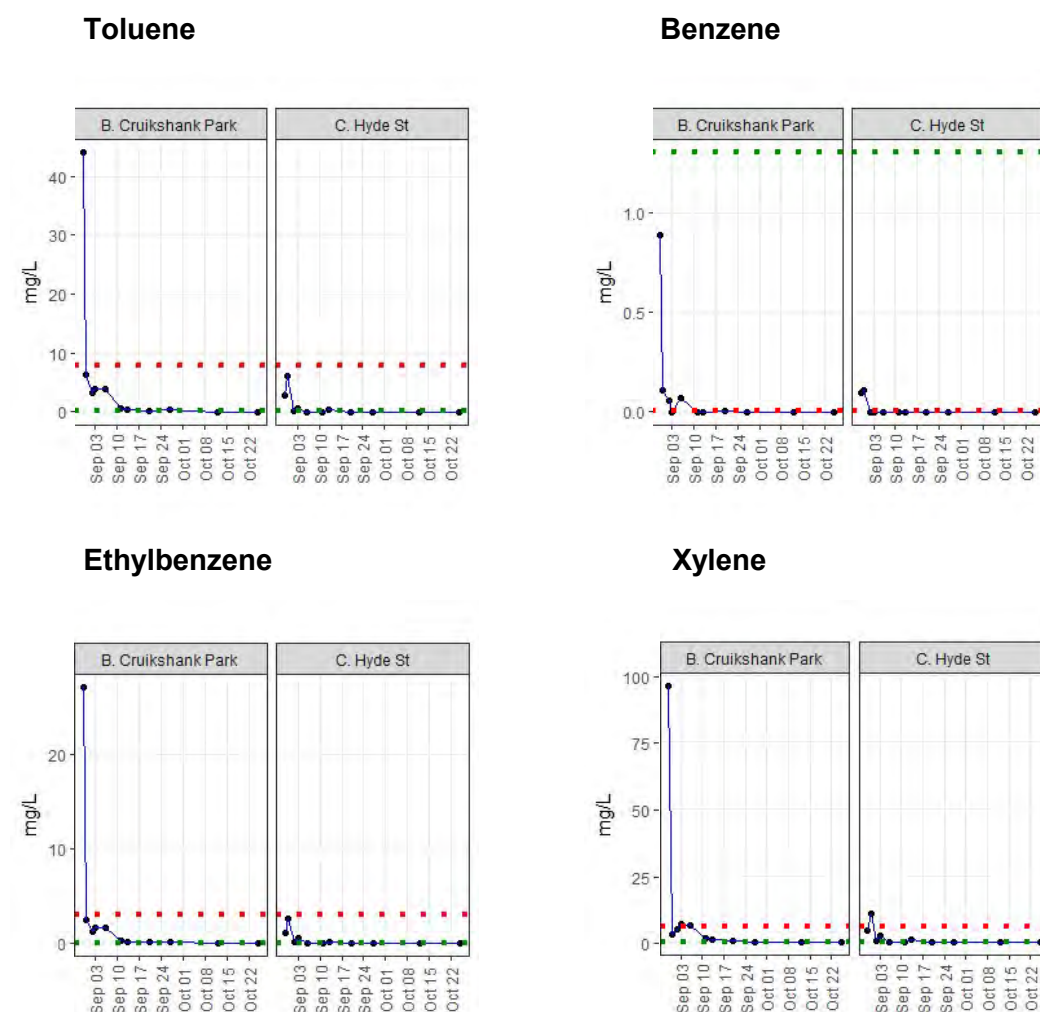
Conditions in Stony Creek have improved considerably since then due to dilution by creek flows, chemical degradation and clean up undertaken by Melbourne Water, including pumping water from the creek. The latest available testing shows that water quality for Cruickshank Park and Hyde street is generally good and below human health recreational water quality guidelines for recreational contact. However, concentrations of xylene in the water remain above aquatic ecosystem guidelines, which are much lower than the human health guidelines. Until recently, toluene and ethylbenzene also exceeded the ecosystem guidelines but by 25 October, these are now at acceptable levels.

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

The heavy rains on 6 November resulted in very high flows in the creek. This is likely to have changed the water quality and moved sediment within the creek channel, depositing some sediment on the immediate surrounds. EPA officers were on site during the rain and can report that no contaminated runoff from the fire site to the creek occurred. They also carried out inspections at downstream locations as well as collecting water samples on 7 November and sediment samples on 8 November to determine the nature of any change. These results will be published as soon as they are available.

West Footscray Fire – results from water quality monitoring

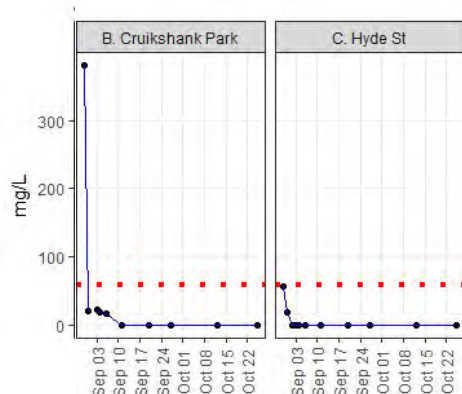
Monocyclic aromatic hydrocarbons (MAH) at two downstream sites from 30/8/2018 to 25/10/2018. The red and green lines indicate recreational water quality and aquatic ecosystem guidelines, respectively.



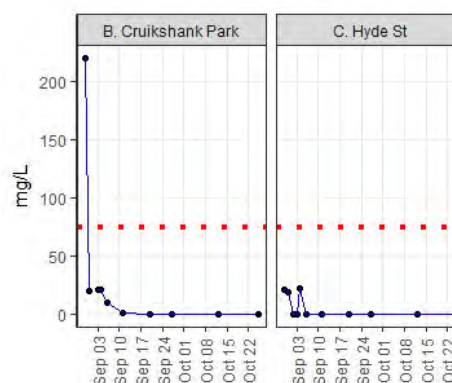
Acetone, methylethylketone, phenol and PFOS at two downstream sites from 30/8/2018 to 25/10/2018. The red and green lines indicate recreational water quality and aquatic ecosystem guidelines, respectively. Note, acetone and methylethylketone do not have aquatic ecosystem guidelines.

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

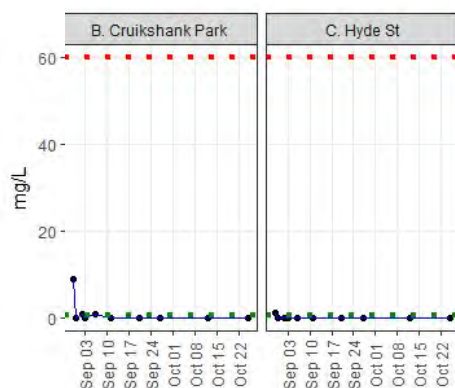
Acetone



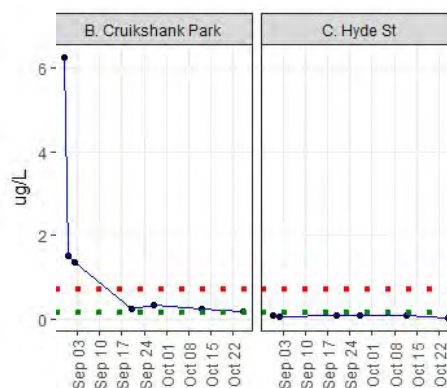
Methylethylketone



Phenol



PFOS



Sediment quality

This update includes sediment quality data from 11 September to the most recent available test results collected on 27 September.

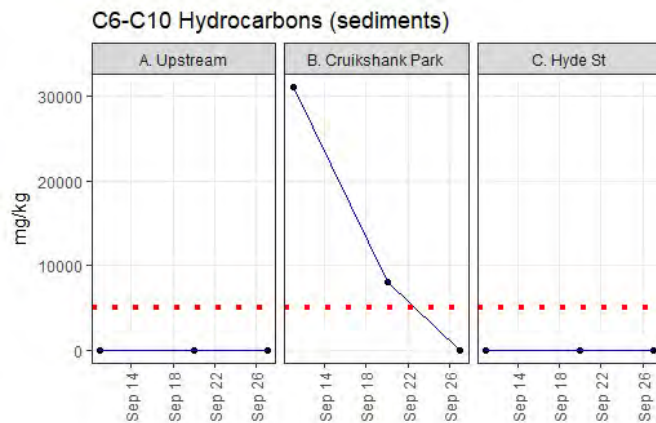
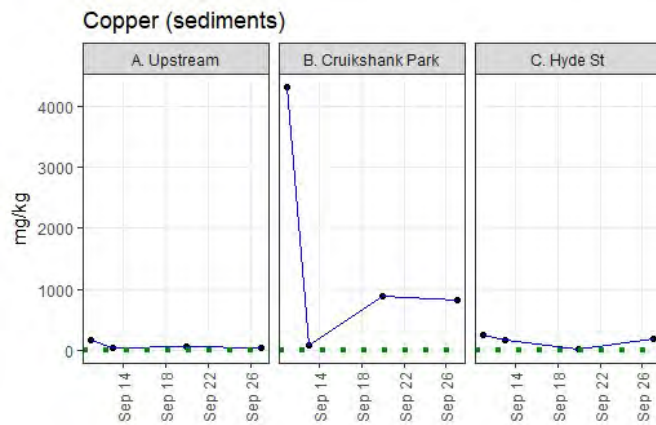
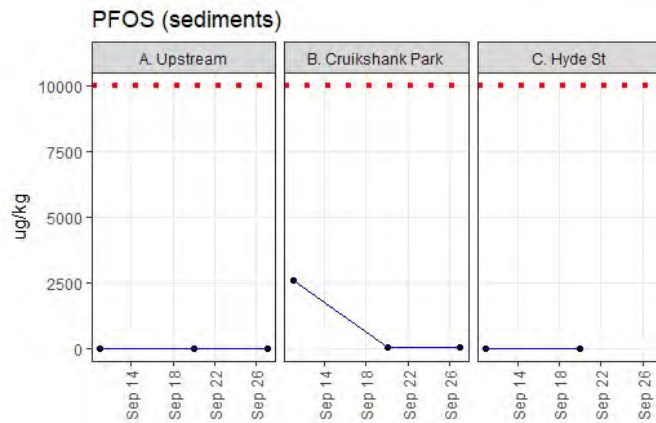
EPA has tested sediments for a range of pollutants from the Stony Creek area since 11/9/2018. Initially concentrations of hydrocarbons in sediments in Stony Creek at Cruickshank Park were above human health recreational water quality guidelines. The latest testing results (27/9/2018) shows that sediment contamination has improved considerably, and levels of hydrocarbons are now below guidelines for recreational contact. Concentrations of copper and C10-C40 hydrocarbons were initially high in sediments at Cruickshank Park following the fire and remain above aquatic ecosystem guidelines for sediments. Although contaminant levels in the sediment have declined, disturbing the sediments would mobilise contaminants and could increase the risk of harm to the environment and human health if touched. EPA continues to advise to avoid contact with the creek in Cruickshank Park until further notice.

Results from sediment quality monitoring

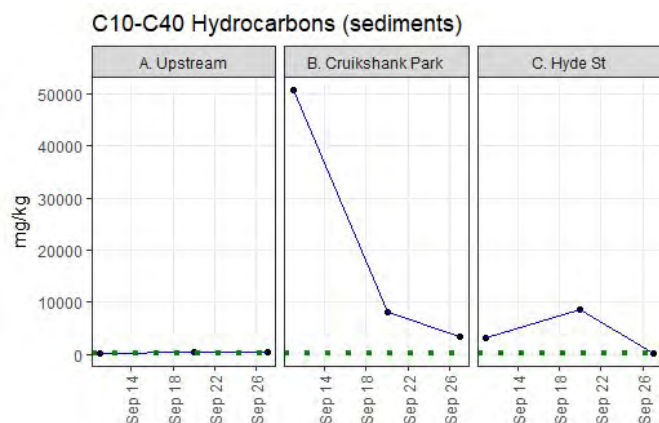
PFOS, copper and C6-C10 (which includes the BTEX chemicals) and C10-C40 hydrocarbons in sediments at site upstream of the fire and two downstream locations from 11/9/2018 to 27/9/2018. The red lines for PFOS and C6-C10 hydrocarbons indicate recreational water

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

quality guidelines. The green lines for copper and C10-C40 hydrocarbons indicate and aquatic ecosystem guidelines.



Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires



Friday 16 November 2018

Environmental monitoring

Air Quality

Volatile Organic Compounds (VOCs)

VOCs are a large group of chemicals containing carbon and give off vapours into the air. This includes chemicals such as ethanol, acetone, xylene, benzene and toluene. VOCs have a low odour threshold and can be smelt even at low concentrations. It is VOCs that can sometimes be smelt near Stony Creek.

Long term health effects are not expected from short term exposures to VOCs.

Volatile Organic Compounds (VOCs) air sampling along Stony Creek

Air samples have been collected and analysed in residential and sensitive areas near Stony Creek. Any chemical odour in this area was due to the vapours or VOCs coming from the chemicals in the creek from the water run-off from the fire site.

Levels of VOCs in the air sampled have all been well below health guideline levels.

Due to an increase in odours after the recent rains mobilized sediments along the creek, EPA will be testing for VOCs on 16 November and again in the following week.

Asbestos

There was asbestos containing building materials at the site of the fire and so 24-hour airborne asbestos sampling and testing was first carried out on 31 August 2018 at various locations near the fire site. Further samples have been taken over a 24-hour period on another four occasions.

Results from asbestos monitoring so far have all been below the limit of detection.

Future airborne asbestos monitoring will be done when high winds are forecast by the Bureau of Meteorology during major demolition and clean-up activities.

Particles

While burning, large amounts of smoke was generated by the fire. EPA monitored the levels of fine particles (PM2.5) near the fire at Footscray, Altona and Brooklyn, as part of EPA’s standard air monitoring network.

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

The 24-hr average levels of fine particles during the fire did not reach unhealthy levels in the community.

Water quality

This update includes water quality data from 30 August to the most recent available test results collected on 7 November.

Overview

EPA has tested water for a range of pollutants from the Stony Creek area and continues to advise not to eat fish taken from Stony Creek. However, based on the results of testing of water quality, there are no concerns regarding fishing and other recreational activities in the Lower Yarra River and Hobsons Bay. EPA advises to avoid contact with the water and sludge in Stony Creek and to keep pets from swimming or drinking the water.

The results show that a range of industrial chemical solvents, detergents and fire soot particles were washed into Stony Creek. The key chemicals detected were phenol (an industrial chemical and cleaning product), polyaromatic hydrocarbons (fire and soot by-products), lighter petroleum hydrocarbon chemicals called BTEX (benzene, toluene, ethylbenzene and xylene), PFAS, and industrial solvents such as acetone and butanone.

Concentrations of these chemicals were very high in Stony Creek on Thursday 30 August and caused rapid death of fish and aquatic life in Stony Creek and in some cases exceeded human health recreational contact guidelines for several days after the fire.

Latest results

Conditions in Stony Creek have improved considerably since then due to dilution by creek flows, chemical degradation and clean up undertaken by Melbourne Water, including pumping water from the creek. The latest available testing shows that water quality for Cruickshank Park and Hyde street is generally good and below human health recreational water quality guidelines for recreational contact. However, concentrations of xylene in the water remain above aquatic ecosystem guidelines, which are much lower than the human health guidelines. Until recently, toluene and ethylbenzene also exceeded the ecosystem guidelines but by 25 October, these were at acceptable levels.

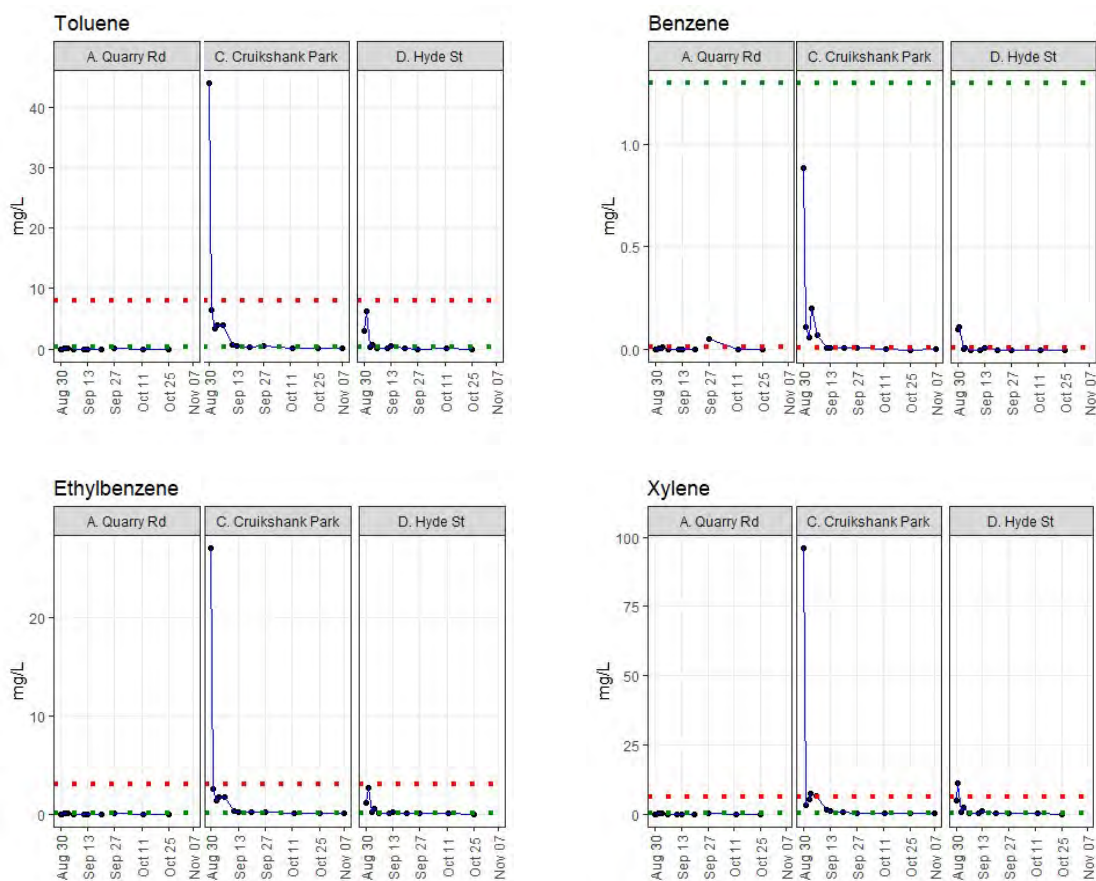
Heavy rainfall during Melbourne Cup Day saw 28.4mm falling within 3 hours in Spotswood and another 8mm on 7 November. The creek subsequently rose from 0.12m to 2m at peak flood on 6 November and to 1m high on 7 November. High flows such as this usually result in flushing and dilution of contaminants in waters and sediment redistribution and deposition further downstream. EPA officers were on site during the rain and reported there that was no contaminated runoff from the fire site to Stony Creek. They also carried out inspections at downstream locations as well as collecting water samples on 7 November and sediment samples on 8 November. The results from this sampling are presented below where available.

Results from regular water quality monitoring at fixed sites in Stony Creek

Results for Monocyclic aromatic hydrocarbons (MAH) at the upstream site (Quarry Rd) and two downstream sites from 30/8/2018 to 25/10/2018 are shown in the graphs below. The red and green lines indicate recreational water quality and aquatic ecosystem guidelines, respectively.

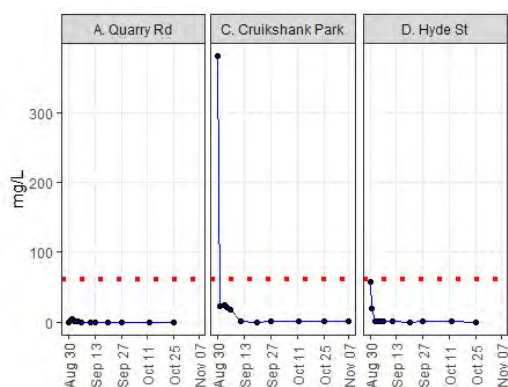
The site at Cruickshank Park was also sampled on 7 November, just after the Cup Day rain event. The results from this site shows water quality was very similar to that recorded previously, with relatively low levels for all chemicals.

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

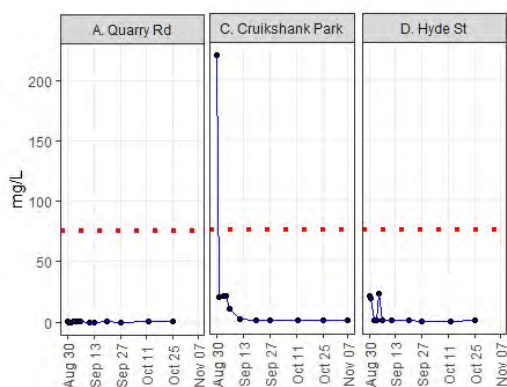


Results for Acetone, methylethylketone, phenol and PFOS at the upstream site (Quarry Rd) and two downstream sites from 30/8/2018 to 25/10/2018 are shown in the graphs below. The red and green lines indicate recreational water quality and aquatic ecosystem guidelines, respectively. Note, acetone and methylethylketone do not have aquatic ecosystem guidelines. The site at Cruickshank Park was also sampled on 7 November. The results from this site shows water quality was very similar to that recorded previously, with relatively low levels for all chemicals.

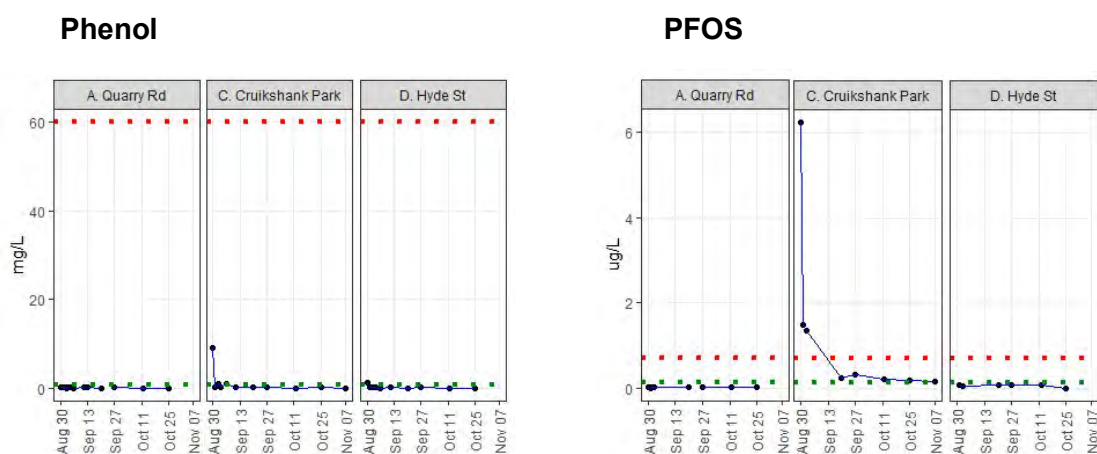
Acetone



Methylethylketone



Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires



Sediment quality

This update includes sediment quality data from 11 September to the most recent available test results collected on 18-19 October. We sampled sediments on 8 November but at the time of publishing, these results were only just received and subject to further interpretation.

EPA has tested sediments in the creek for two purposes:

- 1) targeted sampling to help answer specific questions needed to guide the clean-up operations by Melbourne Water and in response to specific events, and
- 2) to monitor changes over time in contaminants introduced to the creek due to the fire.

The reporting we have done previously has been aimed at the second purpose and we will continue to do this. This update also includes results aimed at meeting the first purpose, helping to better guide the creek clean-up being carried out by Melbourne Water by better defining where the contaminated sediment is. When the data is available we will report on how sediment conditions have changed after the high flows on 6 November.

Results from the targeted sampling

How deep does the contamination extend?

We sampled the surface and deeper (5-10 cm) sediments in Stony Creek at the following locations: (1) upstream of Paramount Road, (2) near Beaumont Parade/Cala Street and (3) Cruikshank Park near Adaleigh Street.

The concentrations of many of the contaminants are expected to reduce with increased natural sediment runoff, dilution with streamflow's and biological degradation over time. It also means that the clean-up work being undertaken by Melbourne Water can focus on just the top few centimetres.

Are different areas within the creek more contaminated than others?

Streams tend to have two main zones within the stream channel. One is the narrow, shallow, more rapidly flowing areas (often called riffles); the other is the slower-flowing, wide and deeper pool areas. The rapid flows in riffles make them erosional and tend not to allow sediment or other material to settle. Pools on the other hand are more depositional in nature, allowing sediment, leaves and other material to settle and accumulate.

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

The pool sections of the creek upstream of Somerville Road and Francis Street tend to have higher contaminant concentrations from the deposition of sediments washed downstream from the fire site. This is not unexpected and means that Melbourne Water can focus on the pool areas rather than the riffle areas where there is little contamination.

What is the level and nature of sediment contamination in the Stony Creek Backwash?

Parks Victoria requested EPA to test the sediments in the Stony Creek Backwash as the juvenile mangroves were dying off. EPA collected sediments from three locations: a reference site on the upper mudflats which Parks considered possibly less affected by the contamination from the fire, and two potentially more impacted sites along the eastern bank of the Backwash, near the Yarra River.

Concentrations of hydrocarbons in the Backwash adjacent to the Yarra River were slightly higher relative to the reference site on the upper mudflats, with some contaminants being 2 – 5 times higher in the former locations. Other contaminants, including copper and lighter petroleum hydrocarbons (C6-C10) do not appear to have increased relative to the reference site. Herbicides were found in the sediments here although at much lower levels than those found closer to the fire site.

Results from regular sediment sampling at fixed sites in Stony Creek

Overview

EPA has tested sediment at fixed locations for a range of pollutants from the Stony Creek area since 11/9/2018. Initially, concentrations of hydrocarbons in sediments in Stony Creek at Cruickshank Park were above human health recreational water quality guidelines.

Although contaminant levels in the sediment have declined, disturbing the sediments would mobilise contaminants and could increase the risk of harm to the environment and human health if touched. EPA continues to advise to avoid contact with the creek in Cruickshank Park until further notice.

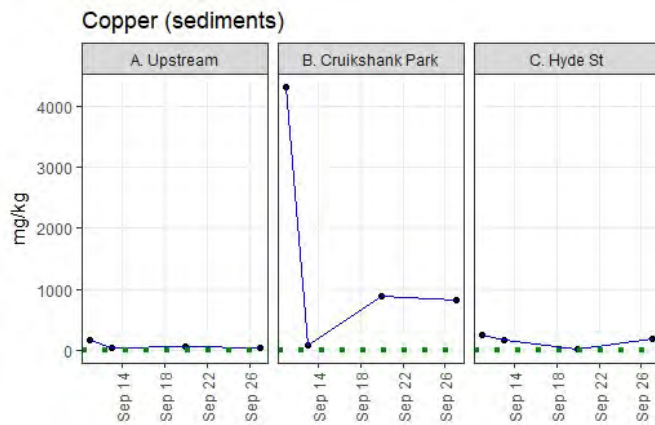
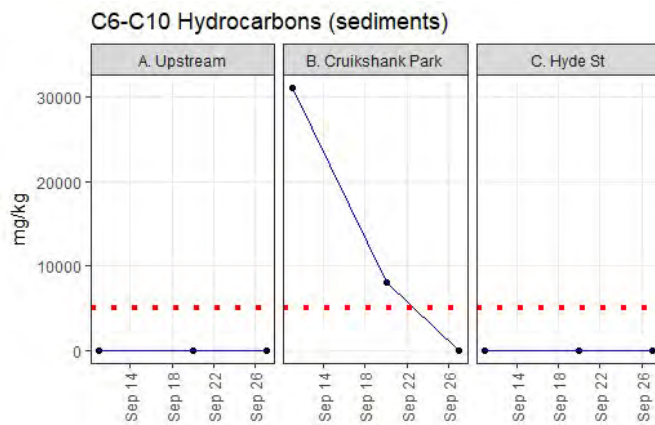
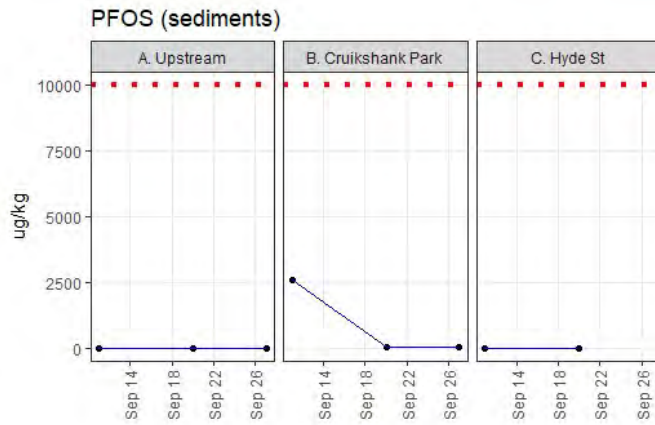
PFOS, copper and C6-C10 (which includes the BTEX chemicals) and C10-C40 hydrocarbons in sediments at site upstream of the fire and two downstream locations from 11/9/2018 to 27/9/2018 are shown in the graphs below. The red lines for PFOS and C6-C10 hydrocarbons indicate recreational water quality guidelines. The green lines for copper and C10-C40 hydrocarbons indicate aquatic ecosystem guidelines.

Latest Results

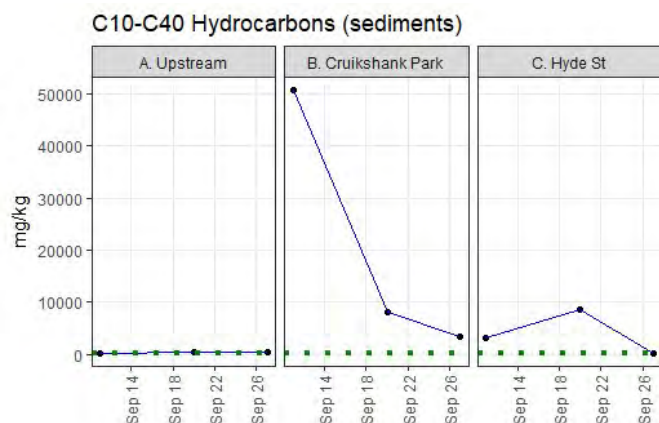
The results for Cruickshank Park (18/10/2018) collected as part of the targeted sampling shows that sediment contamination has improved, but concentrations of copper and C10-C40 remain above aquatic ecosystem guidelines for sediments.

The site at Cruickshank Park was also sampled on 8 November, soon after the Cup Day rain event. The preliminary analysis of results from this site are not shown here as they are undergoing further interpretation but suggest that levels of contaminants in the sediments may have declined significantly. Sampling carried out on 15 November at all fixed sites will confirm the extent of this change.

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires



Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires



Friday 21 December 2018

Environmental monitoring

Water quality

This update includes water quality data from 30 August to the most recent available test results collected on 29 November.

Overview

EPA has tested water for a range of pollutants from the Stony Creek area and continues to advise not to eat fish taken from Stony Creek. However, based on the results of testing of water quality, there are no concerns regarding fishing and other recreational activities in the Lower Yarra River and Hobsons Bay. EPA advises to avoid contact with the water and sludge in Stony Creek and to keep pets from swimming or drinking the water.

The results show that a range of industrial chemical solvents, detergents and fire soot particles were washed into Stony Creek. The key chemicals detected were phenol (an industrial chemical and cleaning product), polyaromatic hydrocarbons (fire and soot by-products), lighter petroleum hydrocarbon chemicals called BTEX (benzene, toluene, ethylbenzene and xylene), PFAS, and industrial solvents such as acetone and butanone.

Concentrations of these chemicals were very high in Stony Creek on Thursday 30 August and caused rapid death of fish and aquatic life in Stony Creek and in some cases exceeded human health recreational contact guidelines for several days after the fire.

Latest results

Conditions in Stony Creek have improved considerably since then due to dilution by creek flows, chemical degradation and clean up undertaken by Melbourne Water, including pumping water from the creek. The latest available testing shows that water quality for Cruickshank Park and Hyde street is generally good and meets human health recreational water quality guidelines for recreational contact. The results are now similar to those we are finding upstream of the site of the fire and runoff. Until recently, xylene exceeded aquatic ecosystem guidelines but by 29 November, was recorded at acceptable levels.

Heavy rainfall during Melbourne Cup Day (6 November) saw 28.4 mm falling within 3 hours in Spotswood and another 8 mm on 7 November. The creek subsequently rose from 0.12m to 2m at peak flood on 6 November and to 1 m high on 7 November. High flows such as this usually result in flushing and dilution of contaminants in waters and sediment redistribution and deposition further downstream. EPA officers were on site during the rain and reported

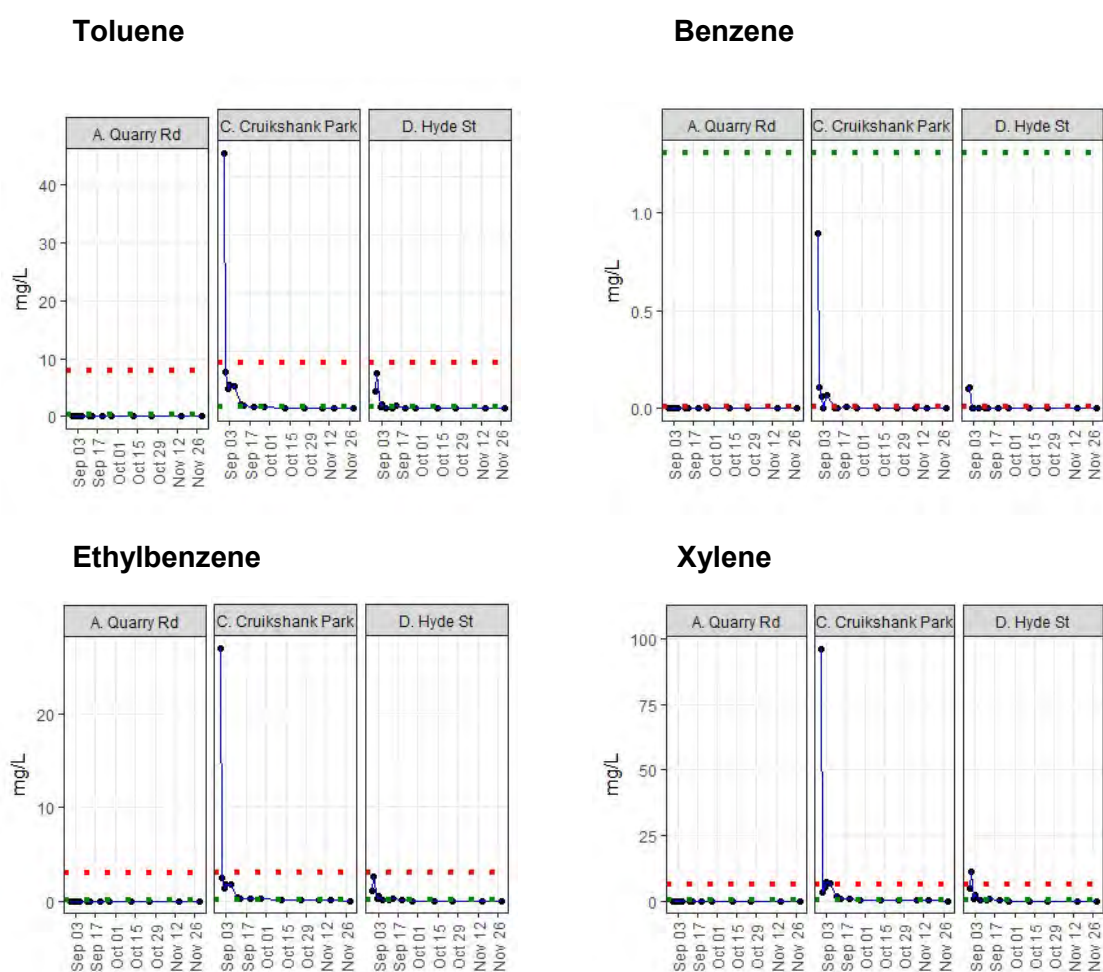
Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

there that was no contaminated runoff from the fire site to Stony Creek. They also carried out inspections at downstream locations as well as collecting water samples on 7 November and sediment samples on 8 November. The results from this sampling and two subsequent regular samplings are presented below.

Other heavy rains (such as those experienced in mid-December) will continue to dilute contaminants in the water and move sediments further downstream. This is likely to be apparent in future monitoring results and is positive for overall rehabilitation of the waterway.

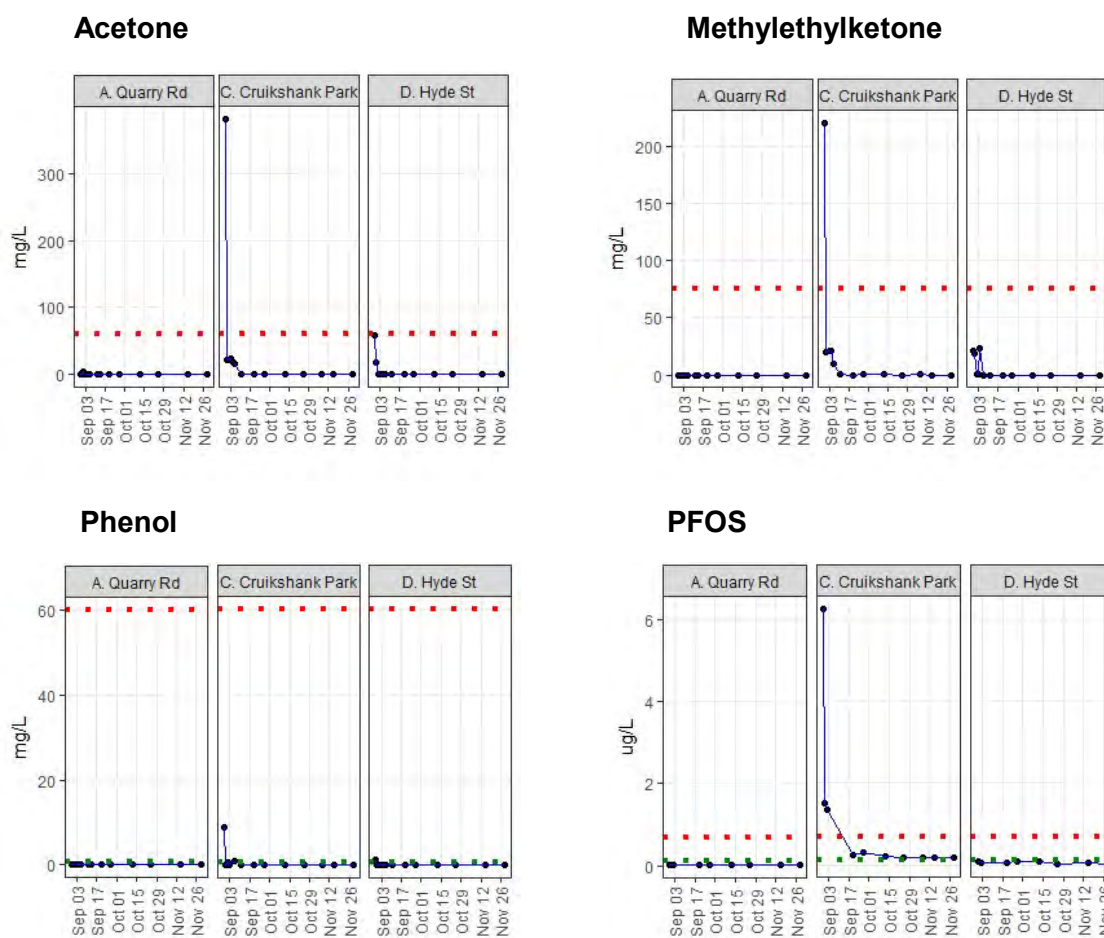
Results from regular water quality monitoring at fixed sites in Stony Creek

Results for monocyclic aromatic hydrocarbons (MAH) at the upstream site (Quarry Rd) and two downstream sites from 30/8/2018 to 29/11/2018 are shown in the graphs below. The red and green lines indicate recreational water quality and aquatic ecosystem guidelines, respectively.



Results for acetone, methylethylketone, phenol and PFOS at the upstream site (Quarry Rd) and two downstream sites from 30/8/2018 to 29/11/2018 are shown in the graphs below. The red and green lines indicate recreational water quality and aquatic ecosystem guidelines, respectively. Note, acetone and methylethylketone do not have aquatic ecosystem guidelines.

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires



Sediment quality

This update includes sediment quality data from 11 September to the most recent available test results collected on 29 November. This update reports on how sediment conditions have changed after the high flows on 6 November and other rainfall.

EPA has tested sediments in the creek for two purposes:

- 1) targeted sampling to help answer specific questions needed to guide the clean-up operations by Melbourne Water and in response to specific events, and
- 2) to monitor changes over time in contaminants introduced to the creek due to the fire.

The reporting we have done previously has been aimed at the second purpose and we will continue to do this. This update also includes results aimed at meeting the first purpose, helping to better guide the creek clean-up being carried out by Melbourne Water by better defining where the contaminated sediment is.

Results from the targeted sampling

How deep does the contamination extend?

We sampled the surface and deeper (5-10 cm) sediments in Stony Creek at the following locations: (1) upstream of Paramount Road, (2) near Beaumont Parade/Cala Street and (3) Cruikshank Park near Adaleigh Street.

The concentrations of many of the contaminants are expected to reduce with increased natural sediment runoff, dilution with streamflow’s and biological degradation over time. It also means

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

that the clean-up work being undertaken by Melbourne Water can focus on just the top few centimetres.

Are different areas within the creek more contaminated than others?

Streams tend to have two main zones within the stream channel. One is the narrow, shallow, more rapidly flowing areas (often called riffles); the other is the slower-flowing, wide and deeper pool areas. The rapid flows in riffles make them erosional and tend not to allow sediment or other material to settle. Pools on the other hand are more depositional in nature, allowing sediment, leaves and other material to settle and accumulate.

The pool sections of the creek upstream of Somerville Road and Francis Street tend to have higher contaminant concentrations from the deposition of sediments washed downstream from the fire site. This is not unexpected and means that Melbourne Water can focus on the pool areas rather than the riffle areas where there is little contamination.

What is the level and nature of sediment contamination in the Stony Creek Backwash?

Parks Victoria requested EPA to test the sediments in the Stony Creek Backwash as the juvenile mangroves were dying off. EPA collected sediments from three locations: a reference site on the upper mudflats which Parks considered possibly less affected by the contamination from the fire, and two potentially more impacted sites along the eastern bank of the Backwash, near the Yarra River.

Concentrations of hydrocarbons in the Backwash adjacent to the Yarra River were slightly higher relative to the reference site on the upper mudflats, with some contaminants being 2 – 5 times higher in the former locations. Other contaminants, including copper and lighter petroleum hydrocarbons (C6-C10) do not appear to have increased relative to the reference site. Herbicides were found in the sediments here although at much lower levels than those found closer to the fire site.

Results from regular sediment sampling at fixed sites in Stony Creek

Overview

EPA has tested sediment at fixed locations for a range of pollutants from the Stony Creek area since 11/9/2018. Initially, concentrations of hydrocarbons in sediments in Stony Creek at Cruickshank Park were above human health recreational water quality guidelines.

Although in most cases contaminant levels in the sediment have declined, disturbing the sediments would mobilise contaminants and could increase the risk of harm to the environment and human health if touched. EPA continues to advise to avoid contact with the creek in Cruickshank Park until further notice.

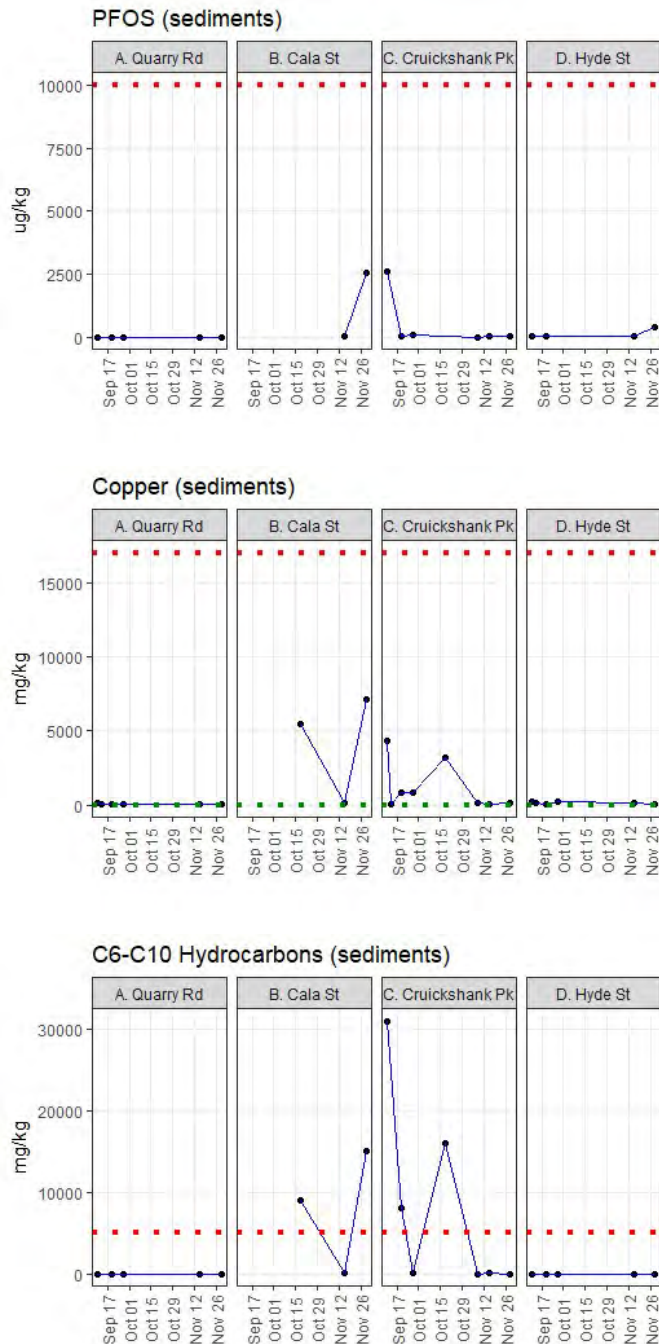
PFOS, copper and C6-C10 (which includes the BTEX chemicals) and C10-C40 hydrocarbons in sediments at Quarry Rd (upstream of the fire) and at three downstream locations from 11/9/2018 to 29/11/2018 are shown in the graphs below. The red lines for PFOS and C6-C10 hydrocarbons indicate recreational water quality guidelines. The green lines for copper and C10-C40 hydrocarbons indicate aquatic ecosystem guidelines.

Latest Results

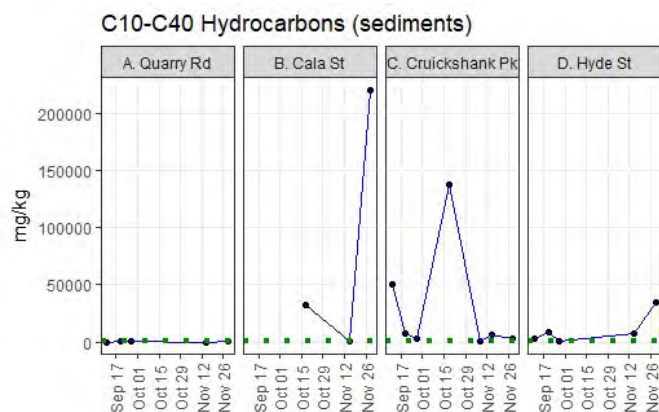
The results show that sediment contamination has improved at Cruickshank Park, but deteriorated at Hyde St (upstream of the bridge) since September 2018. Concentrations of C10-C40 hydrocarbons in sediments sampled on 29 November at Hyde St exceeded aquatic ecosystem guidelines for sediments.

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

Sediment contamination at Cala Street, approximately 1 km downstream of the fire site, returned to high levels for some compounds on 29 November. Concentrations of C6-C10 hydrocarbons exceeded human health recreational guidelines, and concentrations of copper, zinc (not shown) and C10-C40 hydrocarbons exceeded aquatic ecosystem guidelines for sediments.



Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires



Air Quality

Volatile Organic Compounds (VOCs)

VOCs are a large group of chemicals containing carbon and give off vapours into the air. This includes chemicals such as ethanol, acetone, xylene, benzene and toluene. VOCs have a low odour threshold and can be smelt even at low concentrations. It is VOCs that can sometimes be smelt near Stony Creek.

Long term health effects are not expected from short term exposures to VOCs.

Volatile Organic Compounds (VOCs) air sampling along Stony Creek

Air samples have been collected and analysed in residential and sensitive areas near Stony Creek. Any chemical odour in this area was due to the vapours or VOCs coming from the chemicals in the creek from the water run-off from the fire site.

Levels of VOCs in the air sampled have all been well below health guideline levels.

Due to an increase in odours after the large rainfall on 6 November, that moved sediments along the creek, EPA tested for VOCs on 16 November and again in the following week. No exceedances of the health guidelines were found.

Asbestos

There was asbestos containing building materials at the site of the fire and so 24-hour airborne asbestos sampling and testing was first carried out on 31 August 2018 at various locations near the fire site. Further samples have been taken over a 24-hour period on another four occasions.

Results from asbestos monitoring so far have all been below the limit of detection.

Future airborne asbestos monitoring will be done when high winds are forecast by the Bureau of Meteorology during major demolition and clean-up activities.

Friday 25 January 2019

Environmental monitoring

Water quality

This update includes water quality data from 30 August 2018 to the most recent available test results collected on 12 December 2019.

Overview

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

EPA has tested water for a range of pollutants from the Stony Creek area and continues to advise not to eat fish taken from Stony Creek. However, based on the results of testing of water quality, there are no concerns regarding fishing and other recreational activities in the Lower Yarra River and Hobsons Bay. EPA advises to avoid contact with the water and sludge in Stony Creek and to keep pets from swimming or drinking the water.

The results have shown that a range of industrial chemical solvents, detergents and fire soot particles were washed into Stony Creek. The key chemicals detected were phenol (an industrial chemical and cleaning product), polyaromatic hydrocarbons (fire and soot by-products), lighter petroleum hydrocarbon chemicals called BTEX (benzene, toluene, ethylbenzene and xylene), PFAS, and industrial solvents such as acetone and butanone.

Concentrations of these chemicals were very high in Stony Creek on Thursday 30 August and caused rapid death of fish and aquatic life in Stony Creek and in some cases exceeded human health recreational contact guidelines for several days after the fire. Concentrations of these chemicals have declined significantly over time.

Latest results

Conditions in Stony Creek have improved considerably since the fire due to dilution by creek flows, chemical degradation and clean up undertaken by Melbourne Water, including pumping water from the creek. The latest available testing shows that water quality at Cruickshank Park and Hyde street is generally good and meets human health recreational water quality guidelines for recreational contact. The results are similar to those found upstream of the site of the fire and runoff. While xylene previously exceeded aquatic ecosystem guidelines, it has been measured at acceptable levels since 29 November 2018. PFOS concentrations, which had been low, slightly exceeded ecological water quality guidelines at Cruickshank Park on 12 December 2018.

Heavy rainfall during Melbourne Cup Day (6 November) saw 28.4 mm falling within 3 hours in Spotswood and another 8 mm on 7 November. The creek subsequently rose from 0.12m to 2m at peak flood on 6 November and to 1 m high on 7 November. High flows such as this usually result in flushing and dilution of contaminants in waters and sediment redistribution and deposition further downstream. The results from this sampling and two subsequent regular samplings are included in the graphs below and show that, as a result of high flows in the creek, chemical concentrations can vary significantly from time to time.

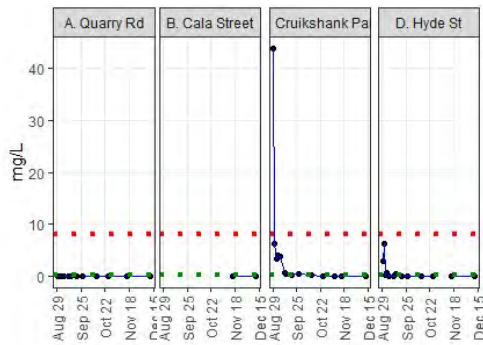
Future heavy rains (such as those experienced in mid-December) will continue to dilute contaminants in the water and move sediments further downstream. This is likely to be apparent in monitoring results and is positive for overall rehabilitation of the waterway.

Results from regular water quality monitoring at fixed sites in Stony Creek

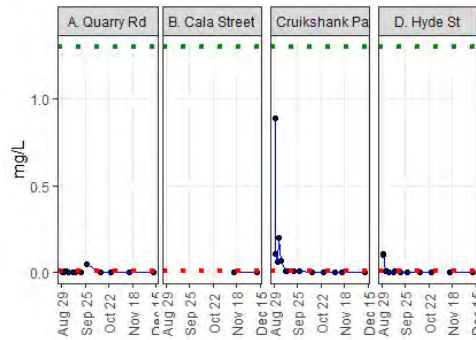
Results for monocyclic aromatic hydrocarbons (MAH) at the upstream site (Quarry Rd) and three downstream sites from 30/8/2018 to 12/12/2018 are shown in the graphs below. The red and green lines indicate recreational water quality and aquatic ecosystem guidelines, respectively.

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

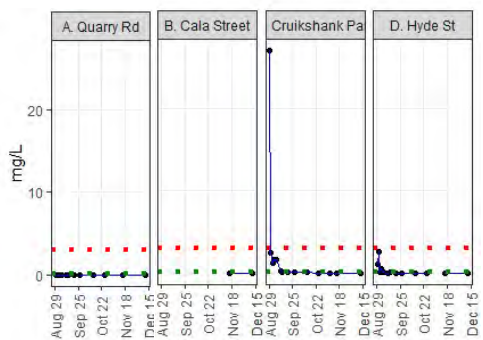
Toluene



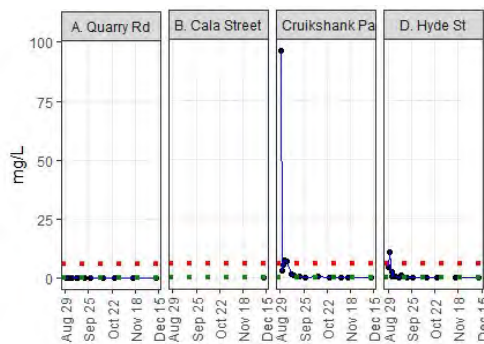
Benzene



Ethylbenzene

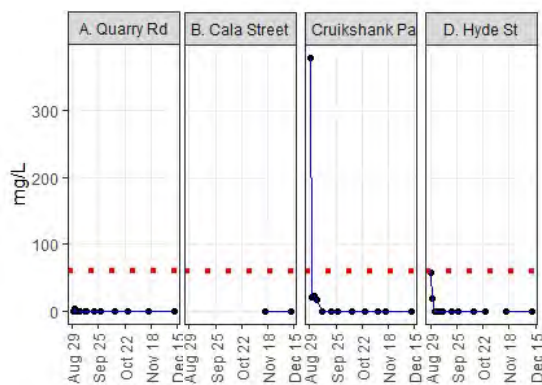


Xylene

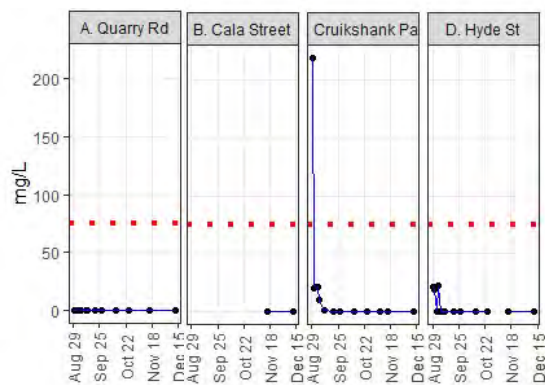


Results for acetone, methylethylketone, phenol and PFOS at the upstream site (Quarry Rd) and two downstream sites from 30/8/2018 to 29/11/2018 are shown in the graphs below. The red and green lines indicate recreational water quality and aquatic ecosystem guidelines, respectively. Note, acetone and methylethylketone do not have aquatic ecosystem guidelines.

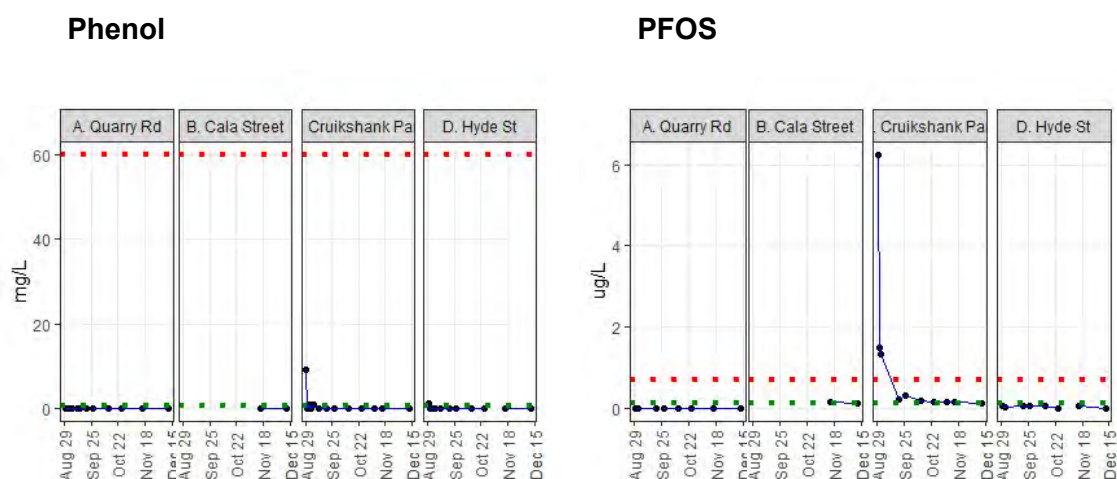
Acetone



Methylethylketone



Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires



Sediment quality

This update includes sediment quality data from 11 September to the most recent available test results collected on 12 December 2018. This update reports on how sediment conditions have changed over time since the fire.

Overview

EPA has tested sediment at fixed locations for a range of pollutants from the Stony Creek area since 11/9/2018. Initially, concentrations of hydrocarbons in sediments in Stony Creek at Cruickshank Park were above human health recreational water quality guidelines.

Although in most cases contaminant levels in the sediment have declined, disturbing the sediments would mobilise contaminants and could increase the risk of harm to the environment and human health if touched. EPA continues to advise to avoid contact with the creek in Cruickshank Park until further notice.

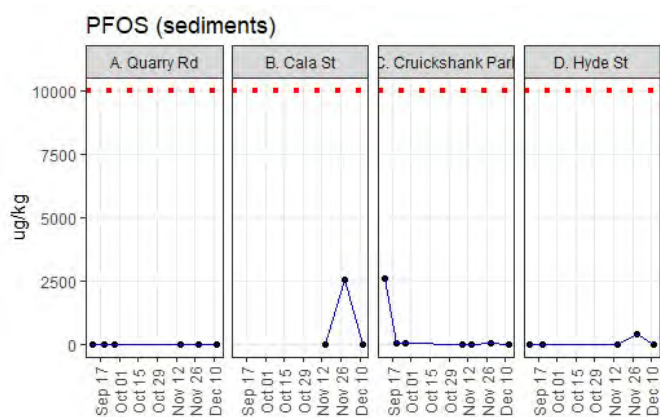
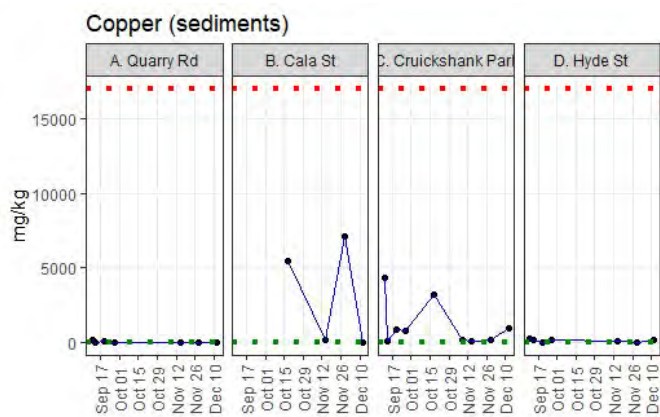
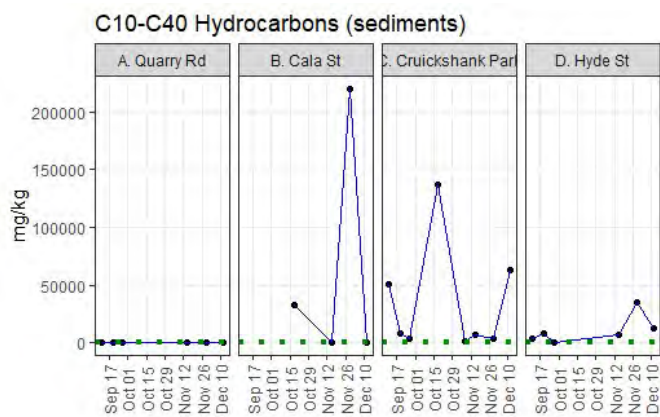
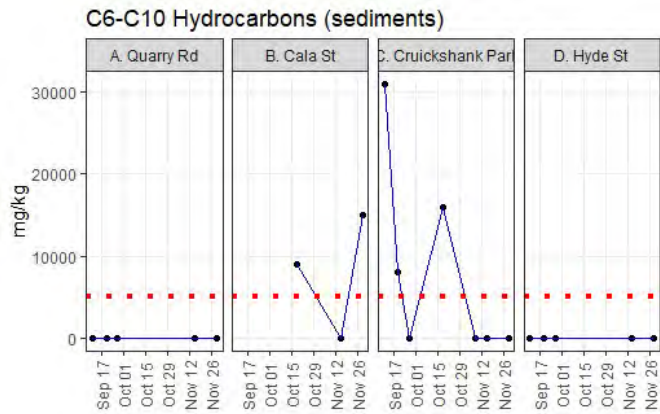
PFOS, copper and C6-C10 (which includes the BTEX chemicals) and C10-C40 hydrocarbons in sediments at Quarry Rd (upstream of the fire) and at three downstream locations from 11/9/2018 to 12/12/2018 are shown in the graphs below. The red lines for PFOS and C6-C10 hydrocarbons indicate recreational water quality guidelines. The green lines for copper and C10-C40 hydrocarbons indicate aquatic ecosystem guidelines.

Latest Results

The latest results show that sediment contamination was lower at Hyde Street but higher at Cruickshank Park in December compared with November 2018. Concentrations of C10-C40 hydrocarbons in sediments sampled on 12 December at both Cruickshank Park and Hyde Street exceeded aquatic ecosystem guidelines for sediments. The changes seen at these sites is likely to be due to the high flows in November and December moving sediment and depositing it in different locations further downstream.

Sediment contamination at Cala Street, approximately 1 km downstream of the fire site, shows variable levels over time for most compounds since sampling commenced at this site in 29 November. Concentrations of C6-C10 hydrocarbons were below human health recreational guidelines, except for Cruickshank Park (12,000 mg/kg), and concentrations of copper, zinc (not shown) and C10-C40 hydrocarbons exceeded aquatic ecosystem guidelines for sediments.

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires



Friday 15 February 2019

Environmental monitoring

Water quality

This update includes water quality data from 30 August 2018 to the most recent available test results collected on 16 January 2019.

Overview

EPA has tested water for a range of pollutants from the Stony Creek area and continues to advise not to eat fish taken from Stony Creek. However, based on the results of testing of water quality, there are no concerns regarding fishing and other recreational activities in the Lower Yarra River and Hobsons Bay. EPA advises to avoid contact with the water and sludge in Stony Creek and to keep pets from swimming or drinking the water.

The results have shown that a range of industrial chemical solvents, detergents and fire soot particles were washed into Stony Creek. The key chemicals detected were phenol (an industrial chemical and cleaning product), polyaromatic hydrocarbons (fire and soot by-products), lighter petroleum hydrocarbon chemicals called BTEX (benzene, toluene, ethylbenzene and xylene), PFAS, and industrial solvents such as acetone and butanone.

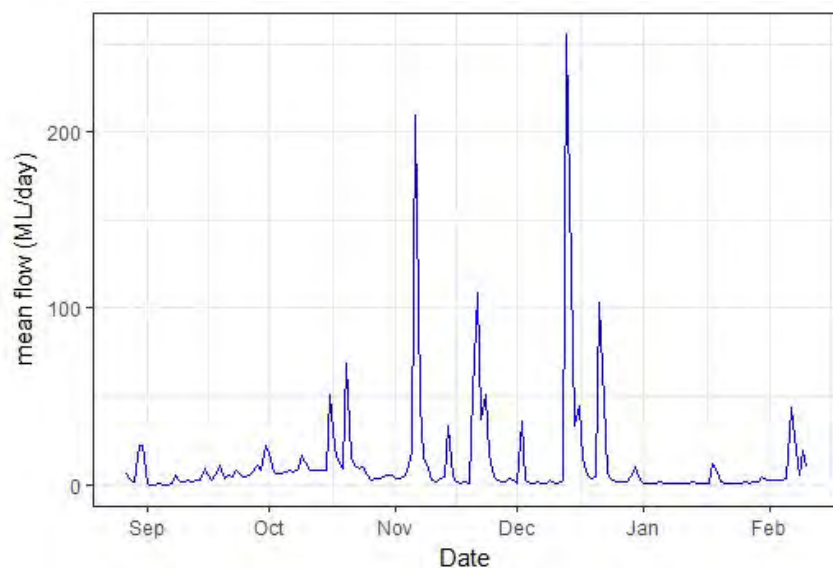
Concentrations of these chemicals were very high in Stony Creek on Thursday 30 August and caused rapid death of fish and aquatic life in Stony Creek and in some cases exceeded human health recreational contact guidelines for several days after the fire. Concentrations of these chemicals have declined significantly over time.

Latest results

Conditions in Stony Creek have improved considerably since the fire due to dilution by creek flows, chemical degradation and clean up undertaken by Melbourne Water, including pumping water from the creek. The latest available testing shows that water quality at Cruickshank Park and Hyde street is generally good and meets human health recreational water quality guidelines for recreational contact. PFOS concentrations remain higher than background levels at Cala St and Cruickshank Park and were just above environmental guidelines when sampled on 16 January 2019.

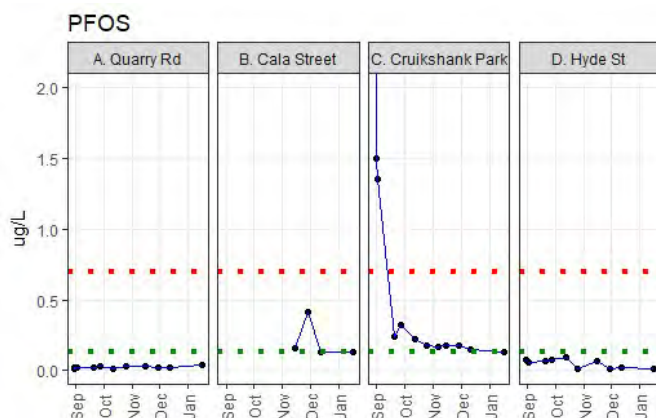
Heavy rainfalls and high creek flows during November and December helped to dilute and flush the creek of water contaminants and aided in the movement of contaminated sediments downstream. The figure below shows Stony Creek mean daily flows (ML/day) measured at the Spotswood gauging station (Bena St, Yarraville) from 26/08/2018 to 11/02/2019.

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires



Results from regular water quality monitoring at fixed sites in Stony Creek

Results for the PFAS perfluorooctanesulfonic acid (PFOS) upstream of the fire (Quarry Rd) and three sites downstream of the fire at Cala St, Cruickshank Park and Hyde St from 30/8/2018 to 16/01/2019 are shown below. The red and green lines indicate recreational water quality and aquatic ecosystem guidelines, respectively. Note, the high PFOS levels recorded on 30/08/2018 are not displayed on this figure to aid interpretation. Other chemicals presented in previous updates of water quality continue to be below relevant guidelines are not presented (these are the BTEX chemicals benzene, ethylene, toluene and xylene, acetone, methylethylketone, and phenol). Note that even though these chemicals will no longer be presented in these reports, EPA will continue measuring and assessing for them to ensure they remain below relevant guidelines.



Sediment quality

This update includes sediment quality data from 11 September to the most recent available test results collected on 16 January 2019. This update reports on how sediment conditions have changed over time since the fire.

Overview

EPA has tested sediment at fixed locations for a range of pollutants from the Stony Creek area since 11/9/2018. Although in most cases contaminant levels in the sediment have declined, disturbing the sediments would mobilise contaminants and could increase the risk of harm to

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

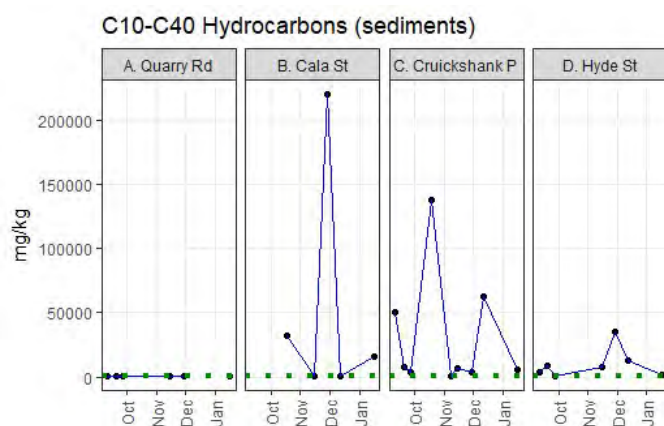
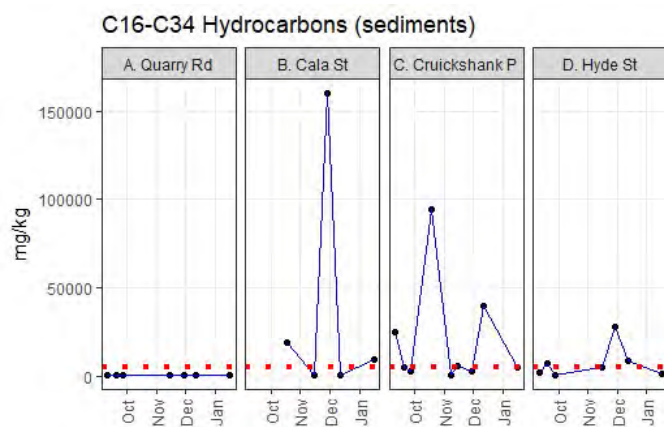
the environment and human health. EPA continues to advise to avoid contact with the creek in Cruickshank Park until further notice.

Latest Results

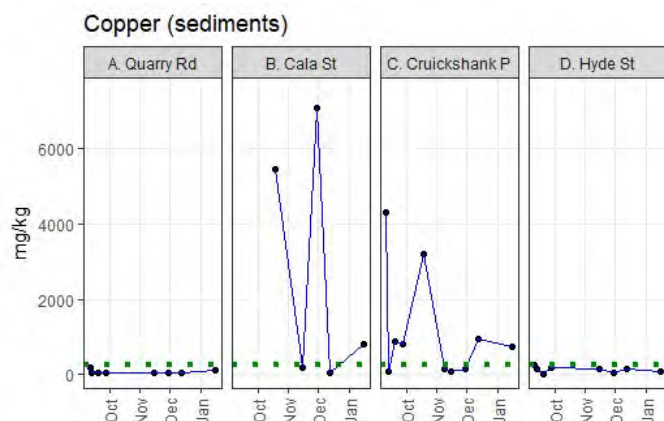
Concentrations of C16-C34 hydrocarbons in sediment exceeded human health guidelines for recreational contact at Cala St site on 16 January 2019. Concentrations of C10-C40 hydrocarbons and copper in sediments continued to exceed environmental guidelines at sites downstream of the fire and remained significantly above background levels recorded upstream of the fire at Quarry Road. The high variation in sediment contaminant levels over time at Cala St and Cruickshank Park may reflect the movement of contaminated sediments during high flow events.

Results from regular sediment quality monitoring at fixed sites in Stony Creek

Results for the C16-C34 and C10-C40 hydrocarbons and copper in sediments sampled upstream of the fire (Quarry Rd) and downstream of the fire at Cala St, Cruickshank Park and Hyde St from 11/09/2018 to 16/01/2019 are shown below. The red line indicates human health guidelines for recreational contact with sediments. The green lines indicate aquatic ecosystem guidelines for sediments. Other chemicals presented in previous updates of water quality continue to be below relevant guidelines are not presented (these are C6-C10 hydrocarbons and PFOS). Note that even though these chemicals will no longer be presented in these reports, EPA will continue measuring and assessing for them to ensure they remain below relevant guidelines.



Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires



Wednesday 20 March 2019

Environmental monitoring

Water quality

This update includes water quality data from 30 August 2018 to the most recent available test results collected on 15 February 2019.

Overview

EPA has tested water for a range of pollutants from the Stony Creek area and continues to advise not to eat fish taken from Stony Creek. However, based on the results of testing of water quality, there are no concerns regarding fishing and other recreational activities in the Lower Yarra River and Hobsons Bay. EPA advises to avoid contact with the water and sludge in Stony Creek and to keep pets from swimming or drinking the water.

The results have shown that a range of industrial chemical solvents, detergents and fire soot particles were washed into Stony Creek. The key chemicals detected were phenol (an industrial chemical and cleaning product), polyaromatic hydrocarbons (fire and soot by-products), lighter petroleum hydrocarbon chemicals called BTEX (benzene, toluene, ethylbenzene and xylene), PFAS, and industrial solvents such as acetone and butanone.

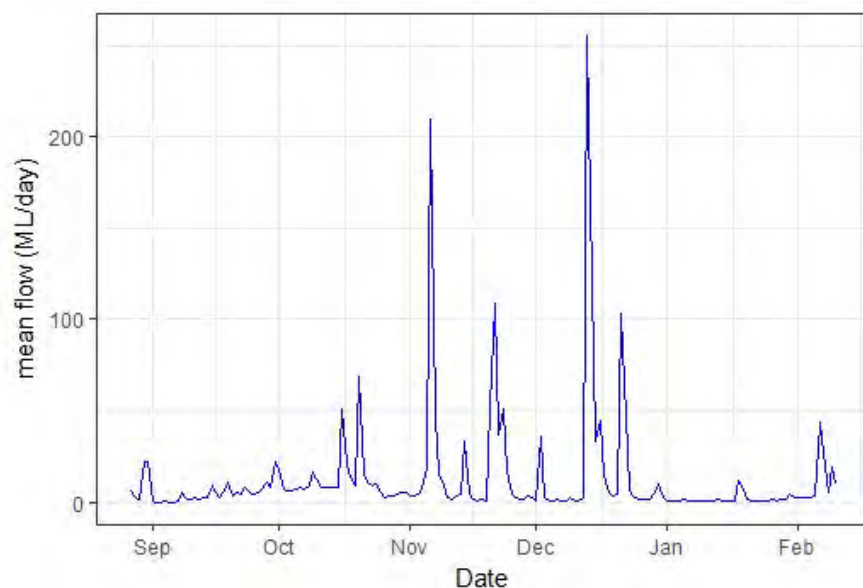
Concentrations of these chemicals were very high in Stony Creek on Thursday 30 August and caused rapid death of fish and aquatic life in Stony Creek and in some cases exceeded human health recreational contact guidelines for several days after the fire. Concentrations of these chemicals have declined significantly over time.

Latest results

Conditions in Stony Creek have improved considerably since the fire due to dilution by creek flows, chemical degradation and clean up undertaken by Melbourne Water, including pumping water from the creek. The latest available testing shows that water quality at Cruickshank Park and Hyde street is generally good and meets human health recreational water quality guidelines for recreational contact. PFAS concentrations in Stony Creek have declined remain higher than background levels at Cala St and Cruickshank Park and were just above environmental guidelines when sampled on 16 January 2019.

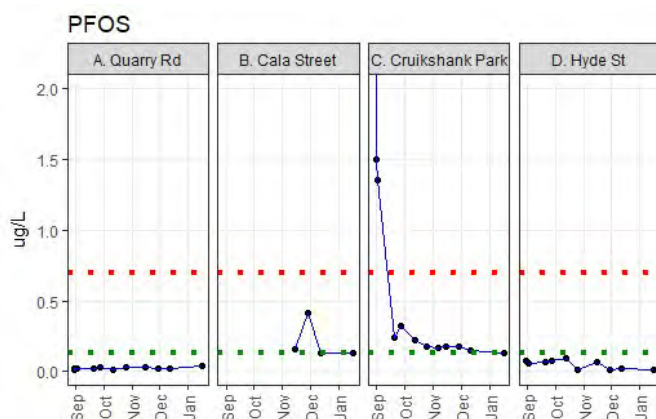
Heavy rainfalls and high creek flows during November and December helped to dilute and flush the creek of water contaminants and aided in the movement of contaminated sediments downstream. The figure below shows Stony Creek mean daily flows (ML/day) measured at the Spotswood gauging station (Bena St, Yarraville) from 26/08/2018 to 11/02/2019.

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires



Results from regular water quality monitoring at fixed sites in Stony Creek

Results for the PFAS perfluorooctanesulfonic acid (PFOS) upstream of the fire (Quarry Rd) and three sites downstream of the fire at Cala St, Cruickshank Park and Hyde St from 30/8/2018 to 16/01/2019 are shown below. The red and green lines indicate recreational water quality and aquatic ecosystem guidelines, respectively. Note, the high PFOS levels recorded on 30/08/2018 are not displayed on this figure to aid interpretation. Other chemicals presented in previous updates of water quality continue to be below relevant guidelines are not presented (these are the BTEX chemicals benzene, ethylene, toluene and xylene, acetone, methylethylketone, and phenol). Note that even though these chemicals will no longer be presented in these reports, EPA will continue measuring and assessing for them to ensure they remain below relevant guidelines.



Sediment quality

This update includes sediment quality data from 11 September to the most recent available test results collected on 16 January 2019. This update reports on how sediment conditions have changed over time since the fire.

Overview

EPA has tested sediment at fixed locations for a range of pollutants from the Stony Creek area since 11/9/2018. Although in most cases contaminant levels in the sediment have declined,

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

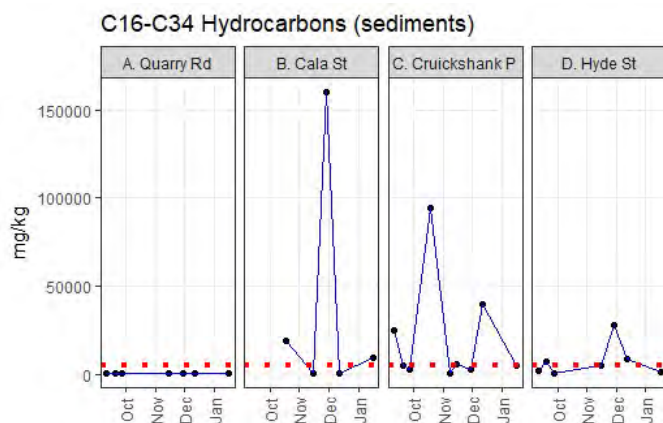
disturbing the sediments would mobilise contaminants and could increase the risk of harm to the environment and human health. EPA continues to advise to avoid contact with the creek in Cruickshank Park until further notice.

Latest Results

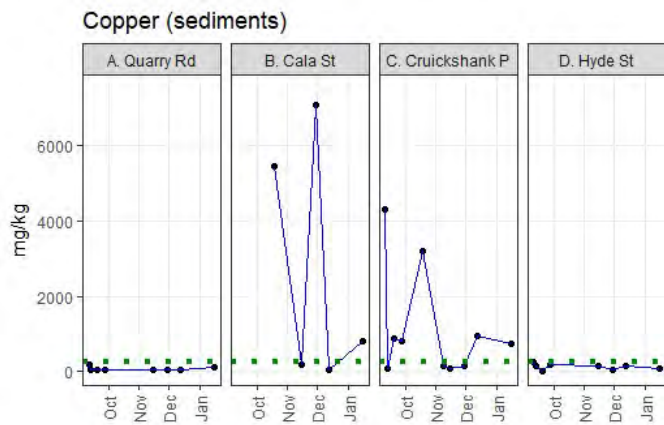
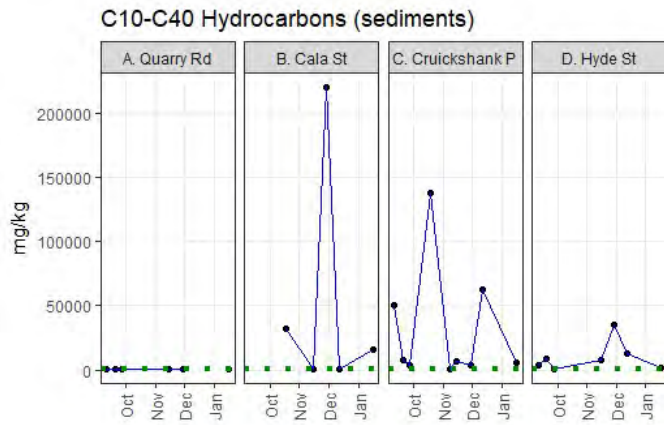
Concentrations of C16-C34 hydrocarbons in sediment exceeded human health guidelines for recreational contact at Cala St site on 16 January 2019. Concentrations of C10-C40 hydrocarbons and copper in sediments continued to exceed environmental guidelines at sites downstream of the fire and remained significantly above background levels recorded upstream of the fire at Quarry Road. The high variation in sediment contaminant levels over time at Cala St and Cruickshank Park may reflect the movement of contaminated sediments during high flow events.

Results from regular sediment quality monitoring at fixed sites in Stony Creek

Results for the C16-C34 and C10-C40 hydrocarbons and copper in sediments sampled upstream of the fire (Quarry Rd) and downstream of the fire at Cala St, Cruickshank Park and Hyde St from 11/09/2018 to 16/01/2019 are shown below. The red line indicates human health guidelines for recreational contact with sediments. The green lines indicate aquatic ecosystem guidelines for sediments. Other chemicals presented in previous updates of water quality continue to be below relevant guidelines are not presented (these are C6-C10 hydrocarbons and PFOS). Note that even though these chemicals will no longer be presented in these reports, EPA will continue measuring and assessing for them to ensure they remain below relevant guidelines.



Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires



2.3 Air Sampling Data

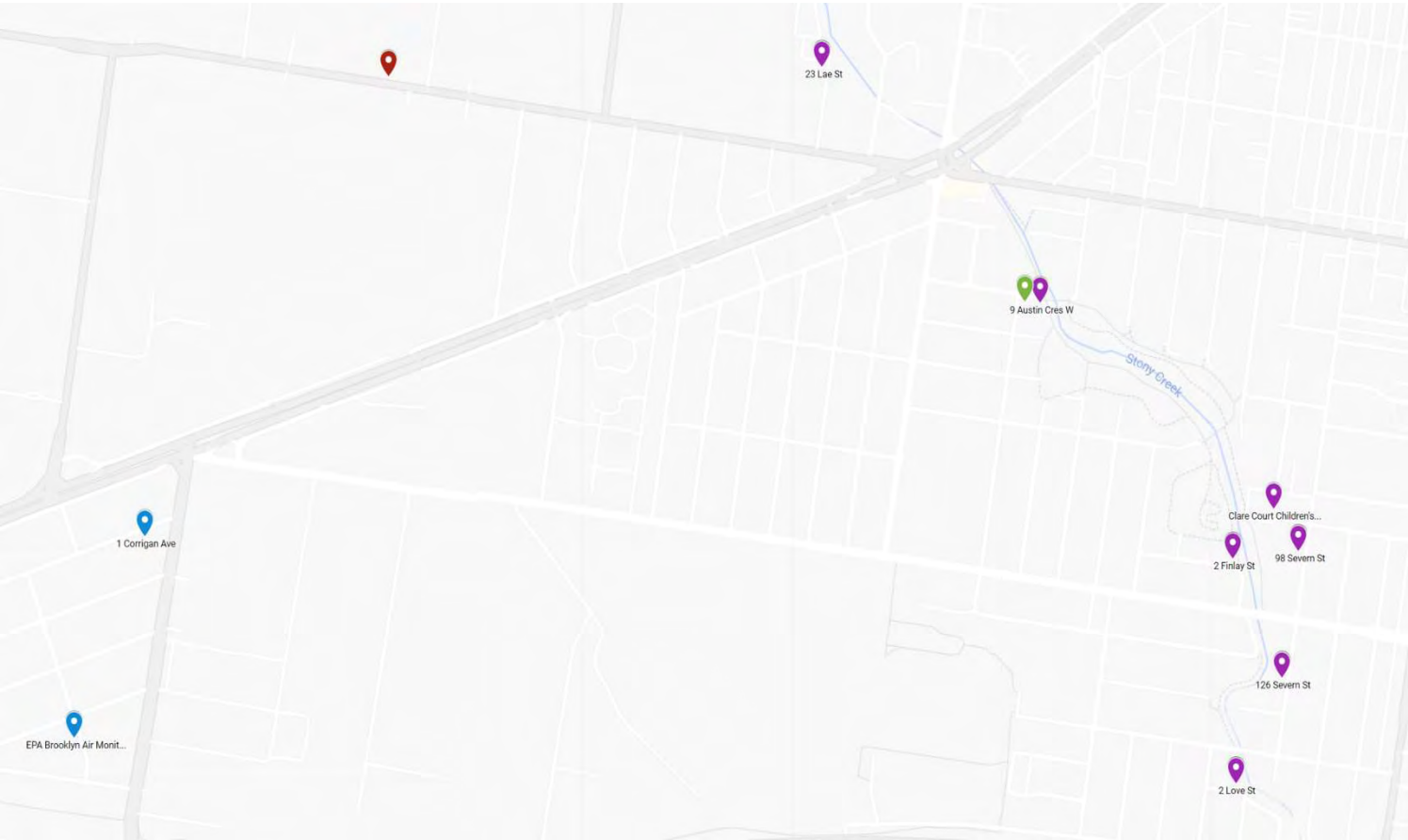
VOCs and Odour

- Two air samples were collected over an **8-hour** period at a location near the fire on the day (30/08/2018) of the fire. While some chemicals were detected, none of these exceeded the USA EPA Acute Exposure Level Guidelines (AELGs).
- Further **24-hour** air samples were collected over two sampling periods 07-08/09/2018 at 6 sites -and 10-11/09/2018 (7sites) in residential and sensitive areas near Stony Creek.
- Sampling results show the VOCs detected are at low levels well below the health impact criteria.
- One site (9 Austin West Yarraville) recorded two VOCs (xylene and toluene) above odour thresholds from the 10-11/09/2018 sampling period.
- Although the measurements are low, you may still experience instances of odour because these chemicals can be smelt at concentrations below the health impact criteria.

Sampling Date	Sampling Location	GPS coordinates	Benzene	Ethyl Acetate	Ethyl Benzene	m,p-Xylene	Toluene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	o-Xylene	Freon 12
31/08/2018	1 Corrigan Ave, Brooklyn	-37.81822, 144.84893	8.7	<3.3	<2.5	<5.4	7.5	<15	<3.7	<2.5	<1.7
	EPA Brooklyn Air Monitoring Station	-37.82205, 144.84712	5.4	<3.3	<2.5	<5.4	6	<15	<3.7	<2.5	<1.6
08/09/2018	2 Love Street, Yarraville	-37.82306, 144.87734	<2.8	<4.4	4	13	12	4.8	<3.3	5	<2.2
	126 Severn Street, Yarraville	-37.82102, 144.87854	<2.3	6.3	8.5	27	23	9.6	<2.8	10	<1.8
	98 Severn Street, Yarraville	-37.81858, 144.87899	<2.5	5.5	8.3	27	21	9	<3	9.6	<2
	2 Finlay Street, Yarraville	-37.81873, 144.87727	<2	4.8	5.9	19	16	6.3	<2.4	6.8	<1.6
	1 Gent Street, Yarraville	-37.81379, 144.87181	<2.3	<3.7	4.3	14	12	5.6	<2.7	5.2	<1.8
	23 Lae Street, Yarraville	-37.80926, 144.8665	<2.2	3.6	7.8	26	18	10	3	9.5	<1.8
10/09/2018	2 Love Street, Yarraville	-37.82306, 144.87734	<2.3	<3.7	<2.7	<6	4.9	<3.7	<2.7	<2.7	<1.8
	126 Severn Street, Yarraville	-37.82102, 144.87854	<2.4	<3.8	<2.9	<6.2	6.8	<3.8	<2.9	<2.9	<1.9
	98 Severn Street, Yarraville	-37.81858, 144.87899	<2.4	<3.9	<2.9	<6.3	6.3	<3.9	<2.9	<2.9	<1.9
	2 Finlay Street, Yarraville	-37.81873, 144.87727	<2.6	<4.1	<3.1	7	7.6	<4.1	<3.1	<3.1	<2.1
	23 Lae Street, Yarraville	-37.80926, 144.8665	<2.2	<3.6	4.7	15	11	6.2	<2.7	5.9	3.8
	9 Austin Crescent West, Yarraville	-37.81379, 144.87222	<2.7	<4.3	<3.3	7.1	7.9	<4.3	<3.3	<3.3	<2.2
	Clare Court Children's Services, Yarraville	-37.81776, 144.87833	<2.3	<3.7	<2.8	7.9	8.1	<3.7	<2.8	3.1	<1.9
Adopted Health Guideline Value (µg/m³)			28754	720000	21712	8700	7537	221000	221000	8700	N/A
Health Guideline Type			AEGL 8 HR	8 Hour TWA	ATSDR MRL 14 Days	ATSDR MRL 14 Days	ATSDR MRL 14 Days	AEGL 8 HR	AEGL 8 HR	ATSDR MRL 14 Days	
Adopted Odour Guideline Value (µg/m³)			1502	324	9	52 (as Xylene)	79	29	29	52 (as Xylene)	N/A
Odour Guideline Type (lower end)						American Industrial Hygiene Association					
Character			Aromatic, sweet, solvent, empyreumatic	Fruity, sweet, fingemal polish, ethereous	Oily, solvent	Sweet, empyreumatic	Sour, burnt	Aromatic	Aromatic	Sweet, empyreumatic	

Results were received for air (VOC) 8-hr canister monitoring results at 2 sites downwind of the fire on Thursday 30 August and 24-hr canister monitoring results at 6 houses along Stony Creek sampled on 7-8 September and 10-11 September. Results displayed are only those that are above LOR. All results were below adopted health guideline values.

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

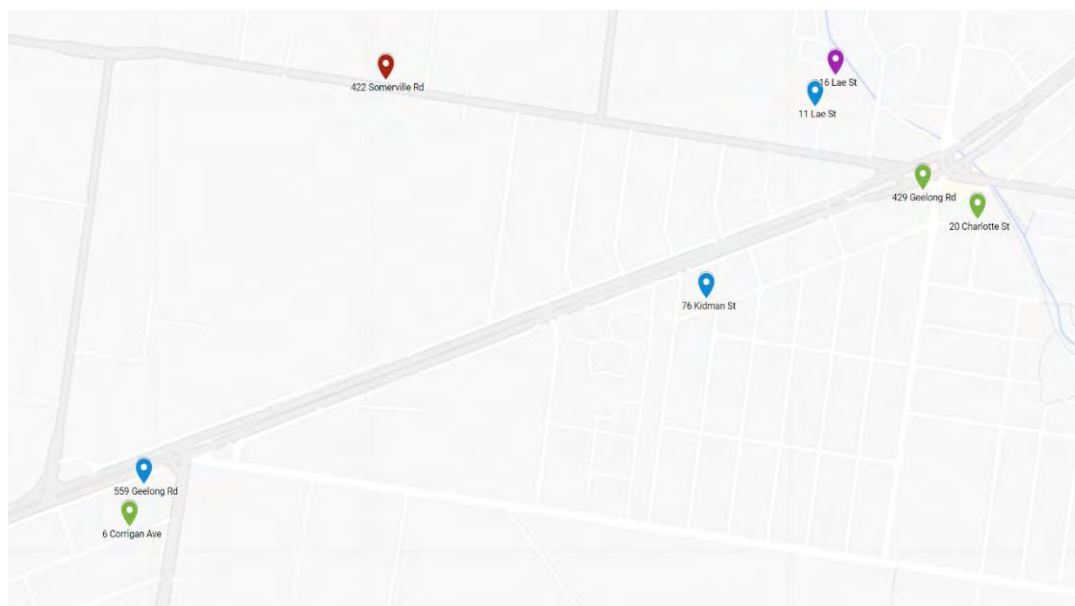


Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

Asbestos monitoring

- 24-hour airborne asbestos sampling and testing was first carried out on 31 August 2018 at various locations near the fire site.
- Further samples have been taken over a 24-hour period on another three occasions – 01/09-02/09, 11/09-12/09 and 15/09-16/09.
- Results for monitoring of asbestos have all been below the limit of detection i.e. less than 0.01 fibres/ml of air.

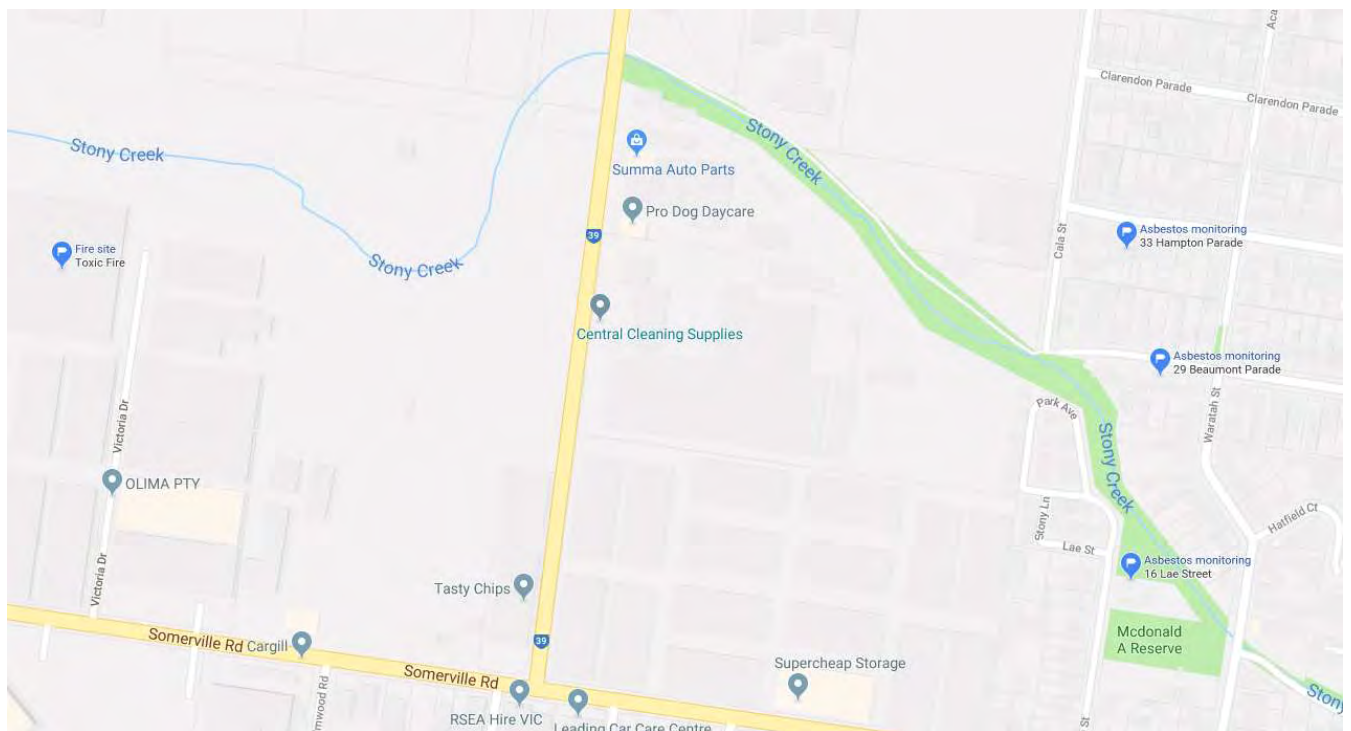
Sampling Date	Sampling Location	Result (fibres/100 fields)	Result (fibres/ml)
31/08/2018	20 Charlotte St, Yarraville - Front Yard	0	<0.01
	6 Corrigan Ave, Brooklyn - Front Yard	1	<0.01
01/09/2018	429 Geelong Rd, Yarraville - Front Yard	0	<0.01
	16 Lae St, West Footscray - Backyard	0	<0.01
11/09/2018	76 Kidman St, Yarraville - Backyard	0	<0.01
	559 Geelong Rd, Brooklyn - Backyard	0	<0.01
	11 Lae St, Footscray - Front Driveway	0	<0.01



Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

Results from 15 September

Sample location	Lab No	Volume (L)	Result (fibres/100 fields)	Result (fibres/ml)
16 Lae St, West Footscray - Backyard	AM8351.11	1124	0	< 0.01
29 Beaumont Pde, Brooklyn- Backyard	AM8351.12	906	1	< 0.01
33 Hampton Pde, Brooklyn- Backyard	AM8351.13	850	0	< 0.01
Field Blank	AM8351.14	--	0	--



2.4 Summary of Air Quality

This is a summary of the air quality as determined by EPA air monitoring at five sites around the fire site. It includes data from 30 August to 6 September.

The figures below show the data in relation to EPA’s standard criteria for assessing health effects from smoke.

According to EPA’s air monitoring across a 24-hour rolling average, the effects of the fire remained mostly in the LOW to MODERATE health categories for the four days of the fire (Figure 1).

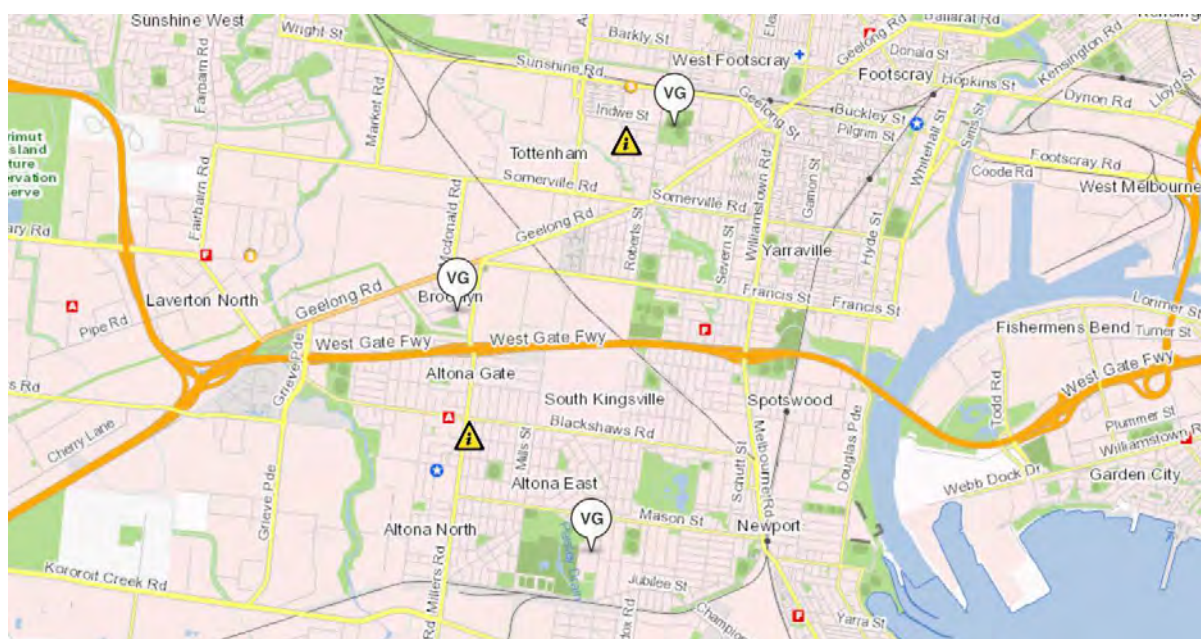
Brooklyn had a spike in the UNHEALTHY SENSITIVE range over a one hourly average on Thursday 30 August (Figure 2).

West Footscray, approximately 500m directly east of the fire, had two spikes in the UNHEALTHY SENSITIVE range for one hourly average data on Friday night (31/01) (Figure 2).

These levels are not expected to result in long terms human health effects.

Monitoring Sites

The sites monitored for air quality are on the map below:



Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

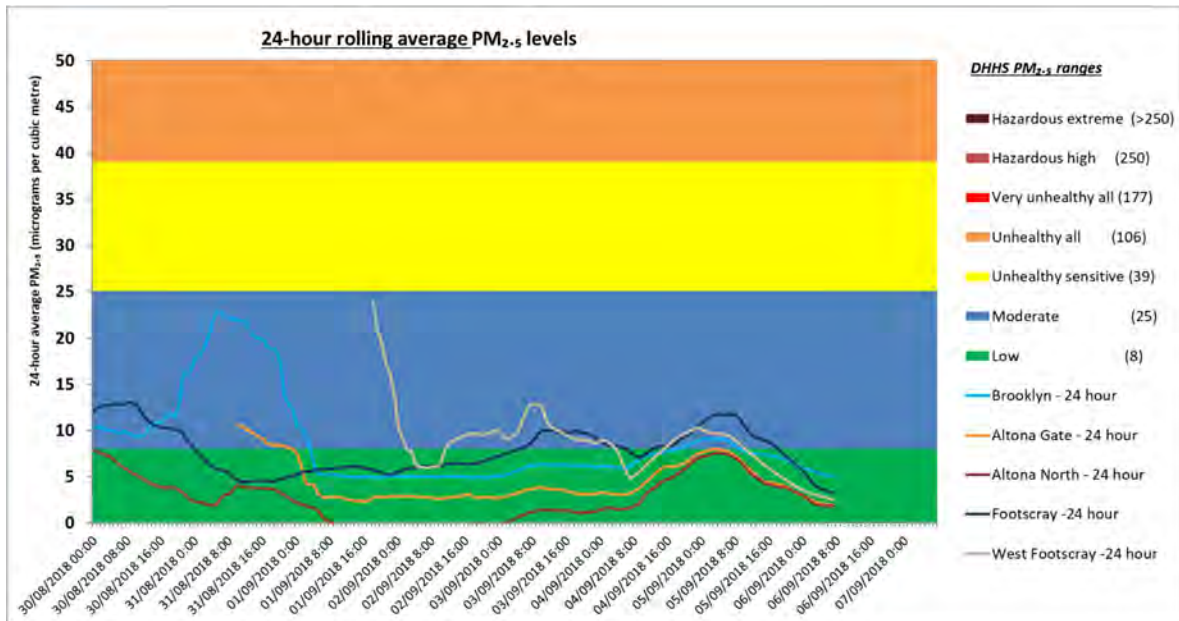


Figure 1: PM 2.5 24-hour (µg/m3)

Criteria for 24-hour exposures (□g/m³)

LOW	0-8	●
MODERATE	9-25	●
UNHEALTHY SENSITIVE	26-39	●
UNHEALTHY ALL	40-106	●

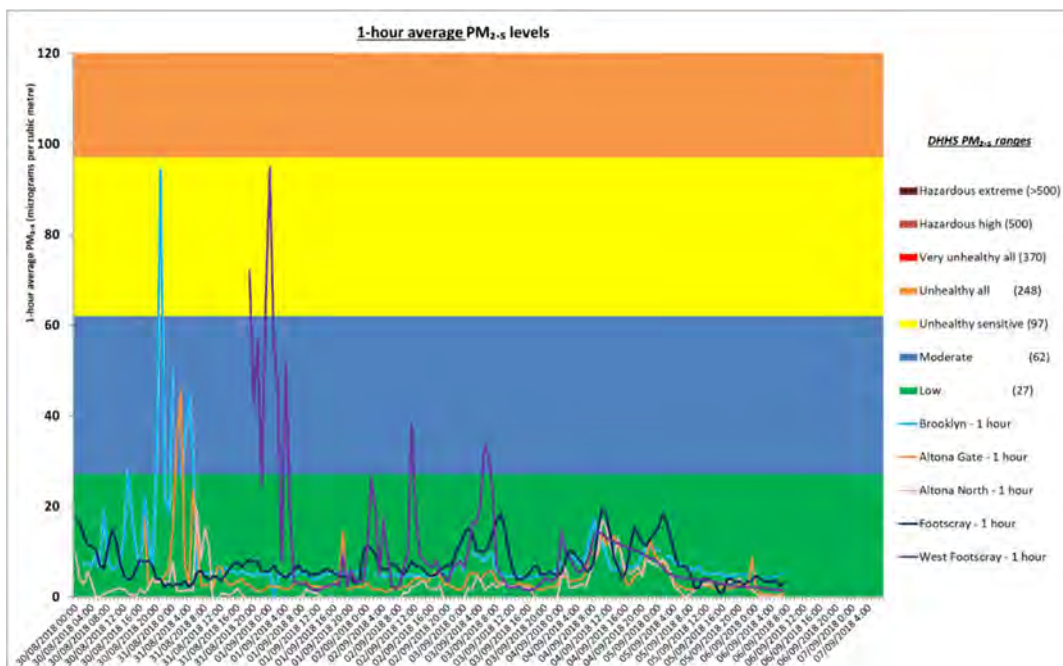









Figure 2: PM 2.5 1-hour (µg/m3)

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

Criteria for 1-hour exposures ($\mu\text{g}/\text{m}^3$)

LOW	0-27	
MODERATE	28-62	
UNHEALTHY SENSITIVE	63-97	
UNHEALTHY ALL	98-248	
VERY UNHEALTHY ALL	249-370	
HAZARDOUS HIGH	371-500	
HAZARDOUS EXTREME	>500	

3. INCIDENT EXAMPLE 2 – THE BRADBURY’S INDUSTRIAL FIRE, CAMPBELLFIELD

EPA Victoria Air Quality Reports

The following information have been taken from EPA Victoria Air Quality Reports.

EPA Air Quality Report, 05 April 2019 12:00 pm

Situational Analysis Summary:

It is EPA’s Assessment based on:

- smoke forecasting,
- field smoke observations,
- 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 “UNHEALTHY SENSITIVE” range. Community south of the fire will be impacted by smoke.
- This level of air quality is likely to remain while strong northerly winds persist.
- The health message is:

If you can smell smoke, please note:

- Smoke can affect people's health.
- People with heart or lung conditions (including asthma), children, pregnant women and older people are more sensitive to the effects of breathing in smoke.
- People with existing heart or lung conditions (including asthma) should follow the treatment plan advised by the doctor.
- Where possible these people in the community should also limit the time spent outdoors

Health information:

- If you need medical advice for burns or exposure to smoke, seek medical advice or call Nurse on Call on 1300 606 024.
- Anyone experiencing wheezing, chest tightness and difficulty breathing should call Triple Zero (000)

If you cannot smell smoke you are not likely to be exposed to smoke and it will therefore not affect you.

For other air pollutants in smoke or other emissions:

- Other than fine particles, other primary air pollutants of potential concern for community health are: VOCs, SO₂ depending on solvents present.

Situation:

Commentary: Information still is being gathered on fire behaviour/prediction.

Field observations from an EPA officer at 11 am were that there is a lot of smoke coming from the site, however smoke is dispersing quickly due to northerly winds and there is currently

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

significantly reduced smoke generation. Plume is dispersing in a southerly direction (south of Barry Road) and impacts are expected south of the fire.

Likely major/primary pollutants are: PM2.5 and VOCs

EPA is planning on measuring PM2.5 and a range of gases including VOCs.

Weather:

Commentary: Strong northerly winds are forecast until early Saturday morning.

Outlook: The outlook for Saturday suggests medium (40%) chance of showers in the morning. The chance of a thunderstorm in the early morning. Winds northerly 30 to 45 km/h shifting west to south-westerly 25 to 35 km/h before dawn then becoming light south westerlies in the early afternoon.

Likely Smoke behaviour: Plume is being dispersing by strong northerly winds and smoke impacts are expected south of the fire site.

Air quality observations and available data

Observations: EPA is currently getting monitoring in place. Currently our best indicator for smoke impacts is the CBD site, currently showing good AQ. This is supported by observations.

Initial EPA Air Quality Monitoring Plan Summary

Deployment in process.

Site 1: Coolaroo

- DustTrak PM2.5
- AreaRAE: CO, VOC, NO2, SO2, NH3, HCN, H2S, CL2

Site 2: Broadmeadows

- DustTrak PM2.5

Site 3: Dallas

- DustTrak PM2.5

EPA Air Quality Report, 05 April 2019 4:00 pm

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 in the “MODERATE” range.
- This level of air quality is likely to remain constant unless fire activity or smoke production is increased.
- Smoke impacts will be localised around the Coolaroo industrial estate due to a significantly reduced smoke plume.
- The health message is general smoke advice:

If you can smell smoke, please note:

Smoke can affect people's health.

- People with heart or lung conditions (including asthma), children, pregnant women and older people are more sensitive to the effects of breathing in smoke.
- People with existing heart or lung conditions (including asthma) should follow the treatment plan advised by the doctor.

Health information:

- If you need medical advice for burns or exposure to smoke, seek medical advice or call Nurse on Call on 1300 606 024.
- Anyone experiencing wheezing, chest tightness and difficulty breathing should call Triple Zero (000).

If you cannot smell smoke you are not likely to be exposed to smoke and it will therefore not affect you.

Situation

Commentary: An industrial fire at Campbellfield (16 – 18 Thornycroft St) is currently under control. The fire plume has significantly reduced since the last report EPA air quality report. EPA officers have confirmed that MFB are waiting for heavy equipment to open hot spots and break down walls. This may increase some production of smoke which MFB are planning to extinguish with more water. The fire activity is expected to decrease over the next 24 hours.

Likely major/primary pollutants are: PM2.5 and VOCs.

Weather:

Commentary: Strong northerly winds are forecast until early Saturday morning.

Outlook: The outlook for Saturday suggests medium (40%) chance of showers in the morning. The chance of a thunderstorm in the early morning. Winds northerly 30 to 45 km/h shifting west to south-westerly 25 to 35 km/h before dawn then becoming light south westerlies in the early afternoon.

Likely Smoke behaviour: The smoke is being dispersed by strong northerly winds and will shift tomorrow morning to the South-West. Moderate to low wind speed on Saturday will bring any smoke to the north east of the local industrial area. Impacts are not expected in the residential area surrounding the fire on Saturday.

Air quality observations and data summary

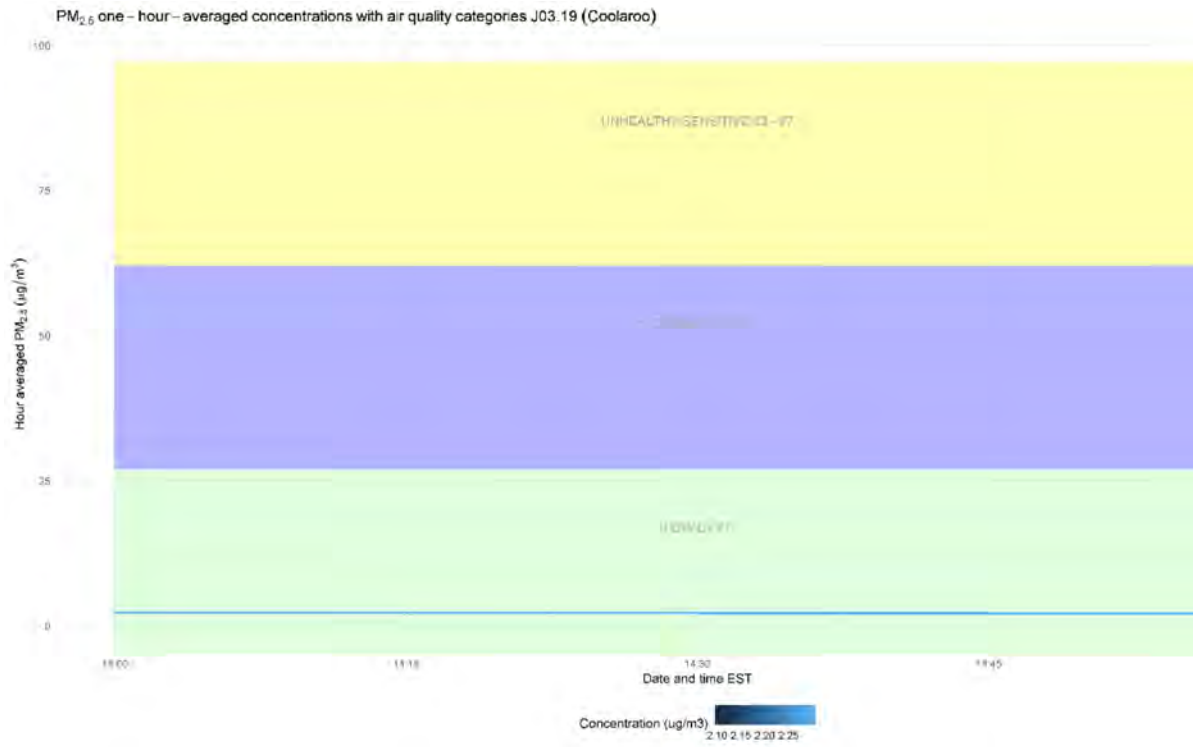
Observations: Levels of particles monitored by EPA and MFB first response monitoring indicate low levels of PM2.5 and gases in the community south of the Coolaroo industrial estate. Campbellfield monitoring site has been setup (preliminary data collected is low), while both Coolaroo and Dallas sites are picking up low levels of particulate matter (PM2.5). All gas monitoring equipment are recording very low levels of VOC.

Incident Air Monitoring will continue over the weekend at the following sites

Site 1: Coolaroo

- DustTrak PM2.5 one-hourly averaged concentrations.

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires



- AreaRAE: CO, VOC, NO₂, SO₂, NH₃, HCN, H₂S, CL₂ – All values are well below trigger levels.
- VOC and solvent air canister (24-hour sample)

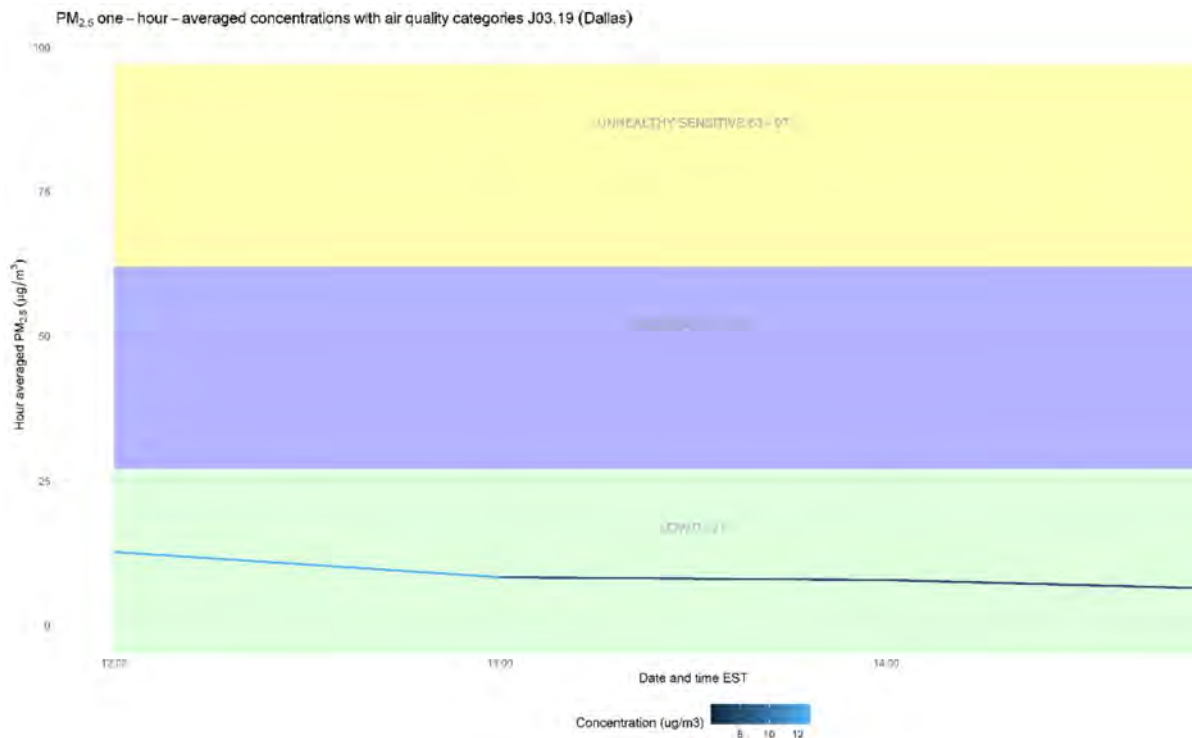
Site 2: Campbellfield (awaiting data acquisition - has been deployed)

- DustTrak PM_{2.5} (will be available in next report)

Site 3: Dallas

- DustTrak PM_{2.5} one-hourly averaged concentrations.

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires



- VOC and solvent air canister (24-hour sample).

EPA Air Quality Report, 06 April 2019 10:00 am

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 in the “LOW” range.
- Very little smoke is detectable from the fire.

General smoke messaging from JSOP 03-19:

Smoke can affect people’s health.

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.

People with existing heart or lung conditions (including asthma) should follow their treatment plan as advised by their doctor.

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.

Anyone experiencing wheezing, chest tightness or difficulty breathing should call 000.

Situation

Commentary: An industrial fire at Campbellfield (16 – 18 Thornycroft St) is currently under control. Fire activity has reduced overnight. The smoke plume is no longer visible from the building. MFB are working on some hotspots today and hope to have the fire extinguished by Sunday. Smoke impacts are not expected for the next 24hrs.

Likely pollutants are: PM2.5 and VOCs

Weather

Commentary: Winds west to southwesterly 15 to 25 km/h becoming light southerly in the early afternoon.

Outlook: The outlook for Sunday suggests moderate north to northwesterly 20 to 30 km/h in the morning then tending west to northwesterly 15 to 20 km/h in the late evening. A chance of rain on Monday through to Tuesday.

Likely Smoke behaviour: Any smoke generated by the fire will be dispersed by moderate to light winds to the north north-east of the local industrial estate. Moderate to light north to northwesterly wind speed on Sunday will disperse any smoke to the south of the local industrial area. Impacts are not expected in the residential area south of the fire.

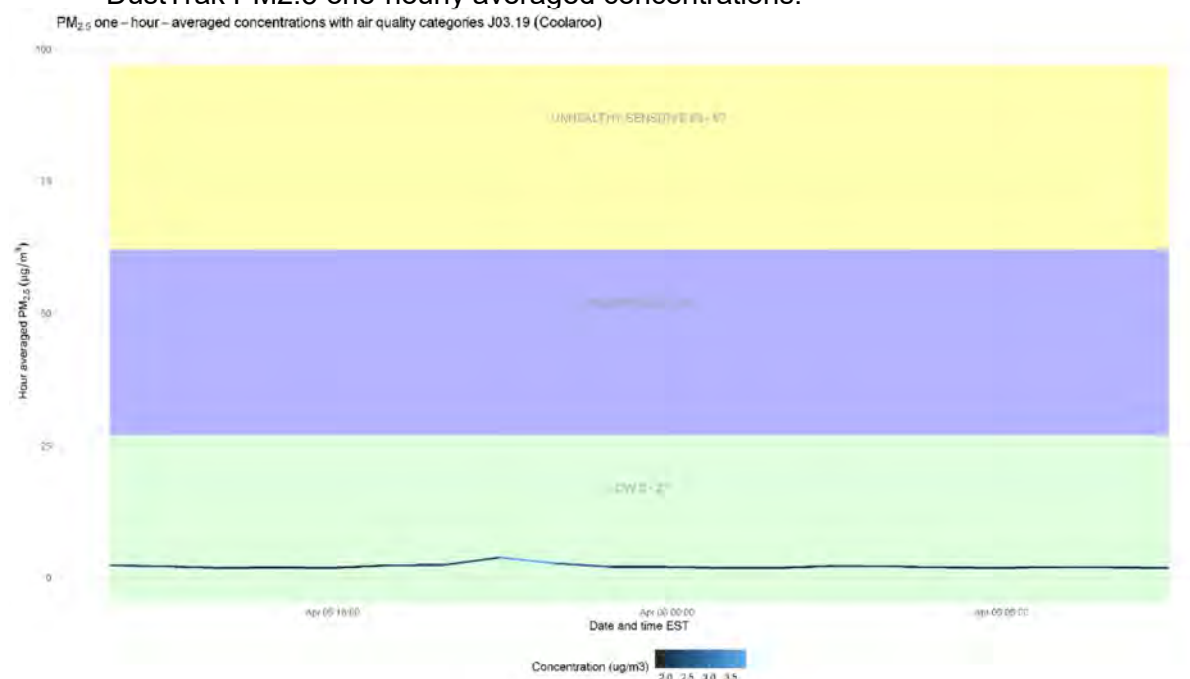
Air quality observations and data summary

Observations: Levels of particles monitored by EPA indicate low levels of PM2.5 in both the community south of the fire (Dallas and Coolaroo) and within the industrial estate (Campbellfield). AreaRAE units at Coolaroo site (community closest to the fire) have not recorded any peak gas concentrations and have all remained well below any trigger levels. VOC gas canisters are currently deployed and half way through 24hr sampling at both residential sites.

Incident Air Monitoring will continue over the weekend until demobilisation triggers are reached.

Site 1: Coolaroo

- DustTrak PM2.5 one-hourly averaged concentrations.

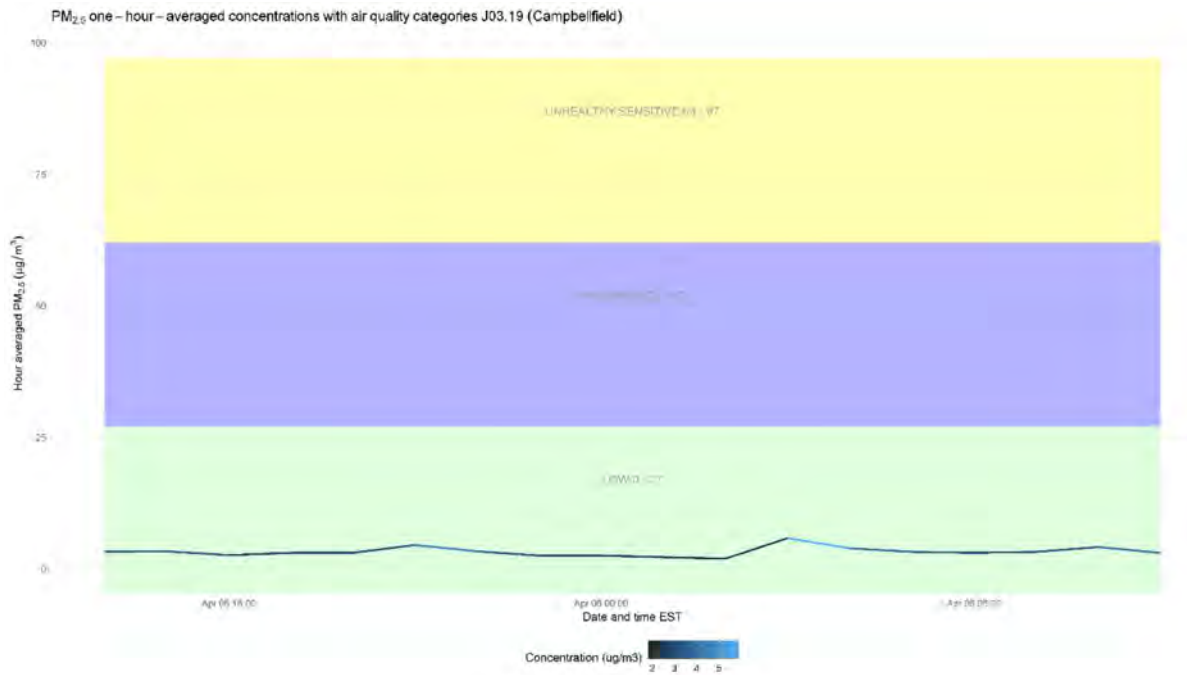


Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

- AreaRAE: CO, VOC, NO₂, SO₂, NH₃, HCN, H₂S, CL₂ o All values are well below trigger levels
- VOC and solvent air canister (24-hour sample)

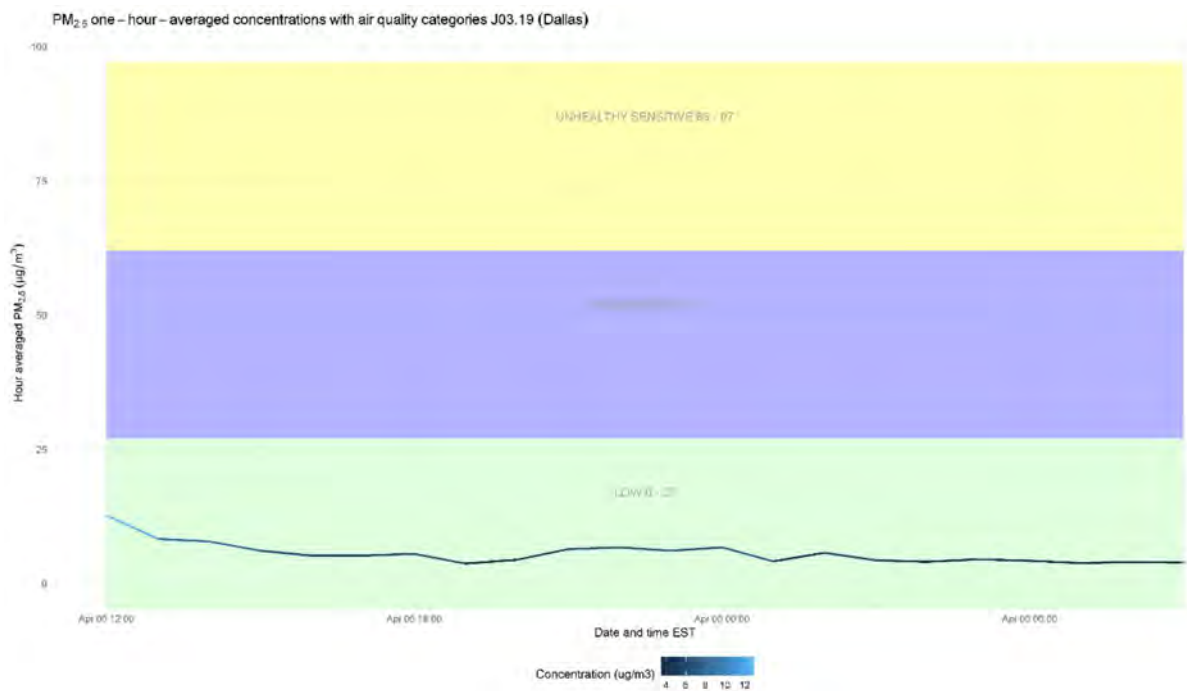
Site 2: Campbellfield

DustTrak PM_{2.5} one-hourly averaged concentrations.



Site 3: Dallas

- DustTrak PM_{2.5} one-hourly averaged concentrations.



- VOC and solvent air canister (24-hour sample)

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

The following data below is an EPA Science Advice Summary (07/04/2019). This is then followed by information from an EPA Sediment Quality Report (12/04/2019) and an EPA Water Quality Report (18/04/2019).

EPA Victoria Science Advice Summary, 07 April 2019

Executive Summary

Incident overview

- An industrial fire at Campbellfield (16 – 18 Thornycroft St) started ~06:30 Friday 05/04/2019 at Bradbury Industrial Services Premises.
- MFB now have the fire under control and demobilised large portions of their attack.
- Firefighters have contained the fire and are monitoring for hot spots.
- Smoke generation is minimal, and it is not expected to impact outside of the immediate vicinity of the fire.

Key concerns

- The current human health risk is recreational exposure to polluted water, especially at Jack Roper Reserve Lake.
- The main risk of environmental impact is likely to be at Jack Roper Reserve Lake and a bird habitat pond downstream of the reserve. No dead or injured wildlife has been reported.
- The prior key human health risk of the fire was smoke impacts from 0630 to approximately 13:00 on Friday 05/04/2019.

Actions to date

- EPA is undertaking incident air monitoring (IAM) to inform health impacts to the community at three sites: Coolaroo, Dallas and Campbellfield.
- EPA is undertaking water monitoring to inform public advice on any health risks, environmental impact, as well as ongoing compliance and enforcement investigation activities.
- EPA has advised on fire water containment strategies to minimise impacts on local waterways.
- EPA is working with Council to have signage installed along most of Merlynston Creek and at Jack Roper Reserve Lake to warn community members and pets away from water contact. Online warnings on Emergency VIC and Yarra and Bay websites mirror signage.

Future actions

- Today, water monitoring teams are assessing the extent of impacted areas to determine if pollution impacts occurred downstream of Jack Roper Reserve Lake in Merlynston Creek and Merri Ck.
- Signage and messaging is being reviewed as required.

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

- EPA plans to demobilise IAM on Monday, if the fire has been extinguished and there is no further risk to the community. Air quality reporting has ceased as at 07/04/2019.
- No water quality sampling results are available. EPA will provide more detailed advice on water quality impacts from mid-week as laboratory results start to become available.

Key observations

- EPA commenced water quality monitoring (sampling and observations) at impacted sites on Saturday once it was assessed as safe to do so.
- No significant pollution or odour was observed at Jack Roper Reserve. A slight sheen can be seen on the Lake, but the cause is uncertain.
- Current air quality in areas around the fire is VERY GOOD with an air quality health category of LOW. General smoke messaging is currently in use on the Emergency VIC website for public advice about the incident.
- EPA has been advised by MFB that there is no concern of asbestos arising from this incident.

Forecast

- The air quality health category of LOW is forecast to 10:00 08/04/2019 (current air quality is VERY GOOD). Smoke impacts are not expected to be significant for the next 24 hours.
- With control of the fire continuing, application of water reducing, and the successful education of polluted water and its discharge to sewer, the risk posed by continued production of firewater is reducing over time.
- Recovery and remediation planning will be informed by water monitoring results as they are received over the next week.

Health

Key concerns

- exposure of community members and pets to polluted waterways (Merlynston Ck and connected lakes)
- exposure of community members to smoke impacts have abated.

Actions to date

- EPA is conducting air quality monitoring and reporting as per JSOP and is actively liaising with the public information sections of the ICC and SCC to ensure community members are informed of risks and self-protective actions for their health.
- EPA continues to work with Hume City Council to arrange installation of physical signage along impacted areas of Merlynston Ck and Jack Roper Reserve to warn community members of the impact of pollution and that they and their pets should avoid contact with the water.
- EPA has provided public information advice for online warnings and advice, including: o Warnings to avoid contact in water at Merlynston Ck from National Business Park wetlands downstream to and including Jack Roper Reserve due to pollution impacts have been published online at: www.yarraandbay.vic.gov.au

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

- General smoke warning text has been used in the Advice – Industrial Fire warning on emergency.vic.gov.au based on EPA air quality reports and forecasts.

Air

Key concerns

- EPA is undertaking Incident Air Monitoring to inform health impacts to the community, at two residential community locations (Coolaroo and Dallas) and one industrial location (Campbellfield).

Actions to date

- Due to the expected involvement of prescribed industrial waste including solvents, oils and other unknown substances, EPA is monitoring for particles, volatile organic compounds, carbon monoxide, nitrogen dioxide, sulfur dioxide, hydrogen cyanide, hydrogen sulphide, chlorine, ammonia and solvents using canisters and real-time incident air monitoring sensors. All monitored levels of gases have been well below any trigger levels since monitoring began.
- Air quality reporting has been issued daily at 10:00 since Saturday.
- General smoke messaging is in effect as per JSOP 03.19.
- EPA self-initiated the incident air monitoring deployment process at approximately 08:00 05/04/2019. An initial monitoring plan was developed by 08:25 and a formal agreed monitoring plan was agreed between EPA and IC by 17:00.
 1. Deployment of VICSES Broadmeadows IAM was initiated at 09:55. EPA IAM deployment was commenced at 10:36 after preparation of equipment and transport of staff.
 2. Three sites were deployed:
 - Dallas – by 11:25 to nearest community/residential area to S of fire, monitoring:
 - PM2.5 (Airwatch)
 - 24 hr VOC air canister – VOCs and solvents
 - Campbellfield – by 15:15 to the industrial area 0.5km to NE of fire, monitoring:
 - PM2.5 (Airwatch)
 - Coolaroo – by 13:40 to nearest community / residential area to SE of fire, monitoring:
 - PM2.5 (Airwatch)
 - 24 hr VOC air canister – VOCs and solvents
 - Gases – volatile organic compounds, carbon monoxide, nitrogen dioxide, sulfur dioxide, hydrogen cyanide, hydrogen sulphide, chlorine and ammonia
 - Results of air canister results are expected mid-week to inform air quality impacts from VOC and solvents.

Future actions

- Incident Air Monitoring is planned to continue until demobilisation triggers are reached. This is likely to occur on Monday 8th April. EPA will review the Air Quality Monitoring Plan with the Incident Controller on Monday. Monitoring will continue at the following sites until demobilisation is agreed.

Key observations

- Monitored levels of particles as PM2.5 have been MODERATE or LOW since commencement of monitoring on Friday 05/04/2019.
- Smoke impacts from the fire site are not expected to be significant, and air quality will remain in the LOW health category.

Water

Key concerns

- The current human health risk is recreational exposure to polluted water, especially at Jack Roper Reserve Lake.
- The main risk of environmental impact is likely to be at Jack Roper Reserve Lake and a bird habitat pond downstream of the reserve. No dead or injured wildlife has been reported.
- Large quantities of water have been applied to attack the fire, but this has been reduced significantly, reducing the volume of runoff and associated containment risks.

Actions to date

- In-situ parameters and observations being collected to inform initial impact assessment:
 1. Photos of observations, including any fish deaths
 2. Reports of odour
 3. Dissolved oxygen
 4. Temperature
 5. pH
 6. Electrical Conductivity
- Laboratory analysis of samples for the following parameters is planned on the basis of expected chemical involvement as informed by the licence waste codes and received site chemical inventory from 03/04/2019. The chemical composition and concentration of substances that were at the site is unknown, however prescribed industrial wastes such as oils, solvents, acids and metals is assumed. A history of non-compliance and extreme caution should be exercised to avoid exposure to contaminants. The listed parameters are for initial screening and will be refined for future analyses based on results from the first round of sampling:
 1. BOD, COD
 2. Total recoverable hydrocarbons
 3. Non-target screening (QTOF)
 4. PAHs
 5. Phenols
 6. Surfactants (LAS/MBAS)
 7. VOCs
 8. Cyanide
 9. E. coli & Total Coliforms
 10. Total Suspended Solids
 11. Anions and cations
 12. Metals suite
 13. SVOCs
 14. PFAS

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

- Five sites are being monitored, one upstream on Merlynston Creek, one at the National Business Park Wetland where education is occurring (being treated as source site), two on the creek downstream and one at Jack Roper Reserve Lake.
- Collected water samples will be delivered to the lab on Monday 8/04/19, with availability of results starting mid-week.

Future actions

- No water quality sampling results are available. EPA will provide more detailed advice on water quality impacts from mid-week as laboratory results start to become available.
- Conduct further observations and in-situ monitoring at all monitoring sites today Sunday 07/04/2019.
- Confirm signage installation in affected areas of Merlynston Ck and Jack Roper Reserve.
- Assess downstream impact and extent, if any, downstream of Jack Roper Reserve.

Key observations:

- Firewater contaminated with fire-fighting foam and industrial waste and solvents from the industrial waste has entered stormwater, and while the risk is low, it is potentially impacting nearby Merlynston Creek and Jack Roper Reserve Lake to the south of the industrial estate.
- Containment measures are in place however if containment fails, there may be visible environmental impacts, localised fish deaths and impacts to vegetation near waterways. EPA is not aware of any reports of injured or dead animals or fish. There was a breach of the bunding for approximately one hour on Friday, causing a small flow into the stormwater drains to the Creek.
- Melbourne Water (MW) is onsite managing wastewater and containing stormwater using a bund, sandbags and pumping straight to sewer at Foden Reserve on Link Drive, and educting effluent that cannot be pumped. MW have also advised that ORCA have plugged a stormwater pipe in the vicinity which may be holding contaminated water behind it, however details and location of this plug are yet to be confirmed.
- Downstream of the education point at National Boulevard, there is some firewater pollution present at the bottom of a stormwater drain where it comes out from underground to the Creek (but is not in the creek as its stagnant). This area is hard to access for the public and EPA has confirmed there are no signs up. EPA is followed up with MW about the risk this being washed into the creek by rain forecast for Tuesday (1-3mm). MW has made decision to not educt or bund the firewater pollution due to the site access difficulty and the presence of the reeds downstream acting as a filter.
- Conditions are variable. At 21:30hrs on 05/04/2019 EPA observed a very strong chemical odour at the education and bund point, and MW staff advised the water colour changed to a rust brown and the odour had become much stronger at that time.
- EPA undertook initial water sampling on 05/04/2019 upstream of the discharge point in Merlynston Ck. A Melbourne Water hygienist sampled the education point. Due to safety considerations, no sampling was conducted downstream in Merlynston Ck and at Jack Roper Reserve. Results are expected Wednesday 10/04/2019.

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

- EPA teams are performing water quality monitoring today 06/04/2019 to collect samples and in-situ observations. Pre-deployment medical checks are being conducted. Teams are equipped with VOC masks and VOC monitoring equipment and management of OHS as per the safety management plan overseen by Operations.
- EPA observed visible pollution to the Creek at National Boulevard directly downstream of a stormwater drain where firewater likely entered the Creek. A translucent, white film was observed and solvent odour was very strong. Dissolved oxygen was 0.02 mg/L and pH 5.8 (Upstream of the factory dissolved oxygen was 8.31 mg/L and pH of 6.75). No signs are up, but this location is hard to access by the public (but it could be accessed).
- Further downstream at Barry Road and Jack Roper Reserve, which are easily accessible to the public, pollution was visible, but to less of an extent, Merlynston Creek at Barry Road was observed having a murky green-white discolouration, but was too shallow to collect in-situ measurements. No signs were observed near Barry Road this will be followed up on 7/4/19. At Jack Roper Reserve Lake, a slight sheen was observed on the Lake (note: there was E. coli pollution to the Creek below National Boulevard and Lake last week, with an alert issued). Dissolved oxygen was recorded at 4.4. mg/L and pH was 6.1.
- On 6/04/19, Melbourne Water visited the creek downstream of the education point. No obvious pollution or odour was visible at Jack Roper Reserve and most of the Creek accessible to the public (upstream to Barry Road).
- EPA will make visual checks and do in-situ sampling at and downstream of the Jack Roper Reserve late today and again tomorrow to monitor dissolved oxygen levels in the Creek and Lake and see if any pollution travelled further south down Merlynston Creek and into Merri Ck (no signage is up downstream of Jack Roper Reserve). This will inform if signs are need further south of the Reserve.
- On 05/04/2019, SCC Intel team requested advice around the risk outcomes of chemical mixing onsite with silver containing waste and cyanide formation risk. EPA advised there was insufficient information available to characterise hazards or associated risks of that nature due to limited information. EPA is analysing for metals (includes silver) and cyanide in the first series of samples to inform this matter.

EPA Victoria Sediment Quality Report, 12 April 2019

Situation Analysis Summary

It is EPA’s Assessment that:

- There is an environmental risk posed by the presence of contaminated sediments in the litter trap, therefore, it needs to be removed. In order to remove the sediment, the sediment needs to be assessed for contamination to allow it to be safely removed and disposed of.
- Based on information provided, the public health risk to occupants of surrounding properties from sediment and soil sampling at the Northern Business Park wetlands in Foden reserve off Link Drive, Campbellfield, will be low. It is assumed that this sampling will cause minimal/no disturbance to the soil, sediment and water at this wetland.
- A review of the public health effects if the sediments/soils are stockpiled or moved will need to be assessed once we have results of comprehensive soil and air testing of relevant parameters.

Warnings and advice

There is currently no warning on the EMV website.

The current warnings on www.yarraandbay.vic.gov.au are:

- Fire water from a factory fire in Campbellfield may have entered Merlynston Creek and Jack Roper Reserve, Coolaroo and Dallas. Avoid contact with creek and lake waters until further notice.
- A pollution event has been reported at Jack Roper Reserve lake, and Merlynston Creek between Maffra St, Coolaroo. Elevated levels of E. coli have been detected via EPA water monitoring. Avoid contact with creek and lake waters until further notice.

Data collected to inform this report includes (Section 4):

- Melbourne Water’s analytical results from samples collected from removed sediments from the wetland in December 2014
- EPA’s assessment of Merlynston Creek results from samples collected in June 2015
- Data collected by RMIT University from sediments at National Business Park in 2015

Data collected so far indicates that:

- Sediments at the National Business Park wetland may contain heavy metals with levels within the Category C contaminated soil range as per IWRG621
- Sediments at the National Business Park wetland may contain TRH C10-C36 with levels within the Category B contaminated soil range as per IWRG621
- A maximum mercury concentration of 380mg/Kg was reported at one site in Merlynston Creek. This level exceeds the Category B contaminated soil upper limit as per IWRG621

The collected data is only indicative of the sediment chemical characteristics at the National Business Park wetland and Merlynston Creek

Weather and Water conditions

Commentary

- Approximately 2.8 mm of rain has fallen between 8/04/19- 12/04/19. This is not likely to have led to significant movement of contaminants

Outlook:

- No rainfall is forecast for the next 5 days (Saturday 13/04 – Wednesday 17/04)

Sediment Quality Data Summary

Sediment Quality data are provided in Section 4. A summary of observations is described below by data source

Data collected by Melbourne Water in Dec 2012 – National Business Park wetland

- TRH C10-C36 Fraction levels within Category B contaminated soil range as per IWRG621
- MAH levels within Category C contaminated soil range AS per IWRG621

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

- Heavy metals levels within Category C contaminated soil range AS per IWRG621

Data collected by RMIT University in 2015 - National Business Park wetland

- Heavy metals levels within Category C contaminated soil range AS per IWRG621

Data collected by EPA Victoria in June 2015 – Merlynston Creek

- Mercury levels within Category A contaminated soil range AS per IWRG621

Sediment characterisation results compared against IWRG 621

Sampling Location		National Business Park RB at Link Drive; sediment	National Business Park RB at Link Drive; sediment	Merlynston Creek sediment	Fill Material upper limit	Cat C upper limit	Cat B upper limit
Source of data		Melbourne Water	RMIT University	EPA Victoria			
Sampling Date		Dec-14	2015	Jun-15			
Contaminant	Categorisation (based on highest value)	mg/Kg	mg/Kg	mg/Kg	TC0	TC1	TC2
					(mg/kg)	(mg/kg)	(mg/kg)
>C10 - C16 Fraction			140				
>C10 - C40 Fraction (sum)			4990				
>C16 - C34 Fraction			3950				
>C34 - C40 Fraction			900				
C10 - C14 Fraction			60				
C10 - C36 Fraction (sum)	CAT B SOIL	16900	4240		1000	10000	40000
C15 - C28 Fraction			2120				
C29 - C36 Fraction			2060				
MAH	CAT C SOIL	12.2			7	70	240
Bifenthrin			36.8				
Diuron			10				
Triclosan			104				
Total Organic Carbon			4.23				
Permethrin			930.5				
Aluminium			16700				
Arsenic	FILL MATERIAL		7		20	500	2000
Barium			240				
Cadmium	CAT C SOIL	49	11		3	100	400
Chromium	CAT C SOIL		67		1	500	2000
Cobalt			18				
Copper	CAT C SOIL	3690	1090		100	5000	20000
Iron			26700				
Lead	FILL MATERIAL		89		300	1500	6000
Manganese			142				
Mercury	CAT A SOIL	70.7	2.9	380	1	75	300
Molybdenum	FILL MATERIAL		7		40	1000	4000
Nickel	CAT C SOIL	147	85		60	3000	12000
Silver	CAT C SOIL	18	6		10	180	720
Strontium			27				
Tin	CAT C SOIL	97	19		50	500	
Titanium			380				
Vanadium			39				
Zinc	CAT C SOIL	2750	1450		200	35000	14000

EPA Victoria Water Quality Report, 18 April 2019

Situation Analysis Summary

It is EPA’s Assessment that:

- The key human health impacts of the Bradbury’s incident are likely to be through recreational exposure, especially in the upper Merlynston Creek area and Jack Roper Reserve Lake.

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires

- Water quality results indicate similar findings to those in-situ results that were collected immediately following the fire (i.e. the impact from the fire appears to have been contained to the upper sections of Merlynston Creek).
- There does not appear to have been an impact on the Jack Roper Reserve Lake. Based on results to date, water quality impacts beyond the upper reaches of Merlynston Creek are not expected.

Warnings and advice

The current warnings EMV are:

- EPA would like to advise the community that People and Pets should avoid contact with water from Merlynston Creek from National Business Park wetlands downstream to and including Jack Roper Reserve. The community is advised to stay away from these areas.

The current warnings on www.yarraandbay.vic.gov.au are:

- Fire water from a factory fire in Campbellfield may have entered Merlynston Creek and Jack Roper Reserve, Coolaroo and Dallas. Avoid contact with creek and lake waters until further notice.

Based on EPA’s most up to date assessment, the following changes to Warnings and Advice are recommended:

- People should avoid contact with while EPA monitors water quality in Merlynston Creek and Jack Roper Reserve.
- There may be impacts to aquatic life in Merlynston Creek and Jack Roper Reserve, but EPA has not received any been reports.

Data collected so far indicates that

Lowered dissolved oxygen in the upper part of Merlynston Creek, near the National Boulevard outfall and at the stormwater wetland is the main area of impact.

The likely major/primary pollutants are:

The MSDS is located at <https://www.bradburyis.com/msdsforms/>

- Organic matter from the fire, which lowers oxygen in the water
- Surfactants
- Solvents
- Oils
- Cyanide
- Heavy metals

This assessment has been based on:

Based on MSDS located at <https://www.bradburyis.com/msdsforms/>

Weather and Water conditions

Commentary

- Approximately 2.8 mm of rain has fallen between 8/04/19- 10/04/19. This is not likely to have led to significant movement of contaminants

Outlook:

- No rainfall is forecast for the next 24 hours

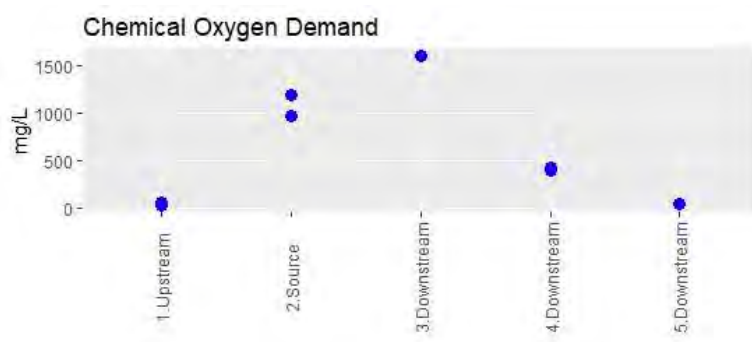
Timeline – Monitoring and results

No further water sampling is planned for now.

Water Quality Observations & Data Summary

18/04/2019

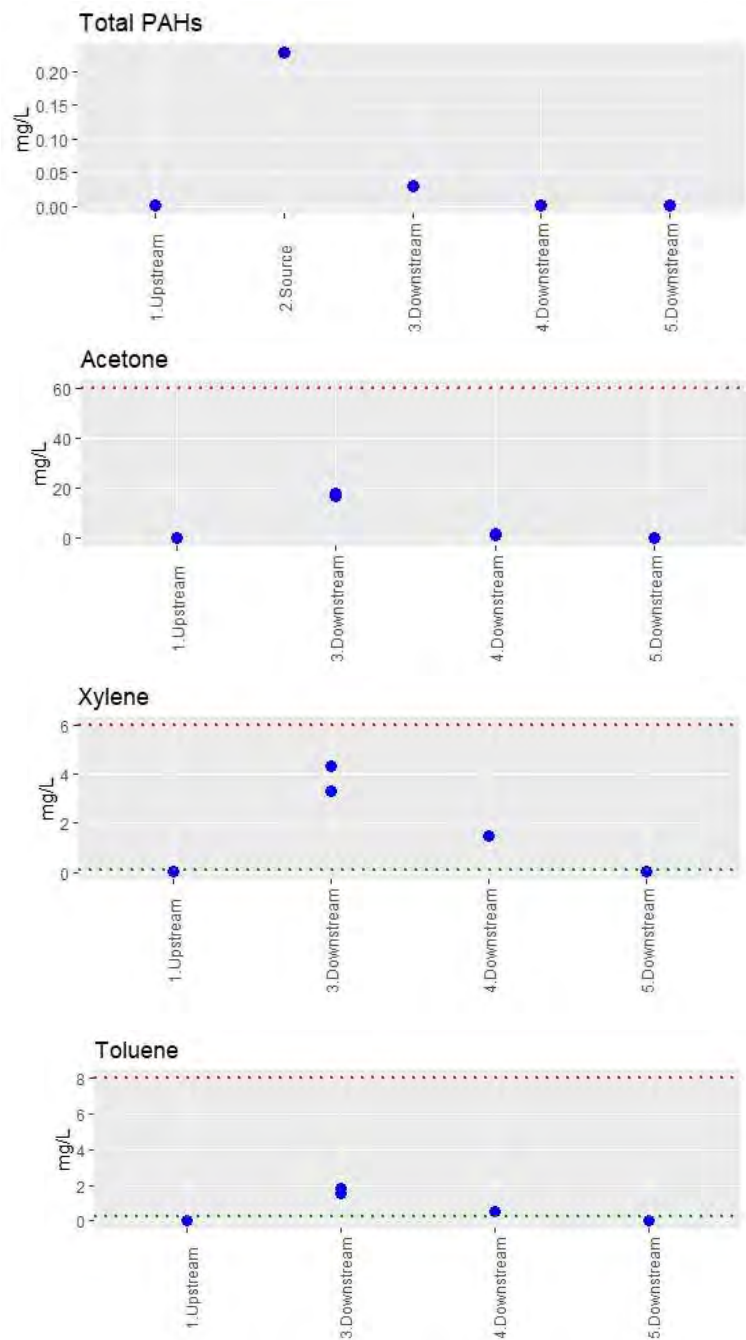
- Interim water quality results for samples collected on Saturday 6 April were received by EPA on 17/04/19. Some analyses are still pending including the non-target analysis and PFAS at one location.
- The analysis results indicate similar findings to those in-situ results that were collected immediately following the fire. This suggests that the impact from the fire appears to have been contained to the upper sections of Merlynston Creek.
- Very low dissolved oxygen was detected in the immediate vicinity of the stormwater outlet entering Merlynston Creek at National Boulevard. These readings are confirmed from analysis of Chemical Oxygen Demand at National Business Park (2. Source) and immediately downstream at National Boulevard (3. Downstream).



NOTE: sites are numbered relative to position along Merlynston Creek, with site ‘5. Downstream’ being furthest downstream at Jack Roper Reserve.

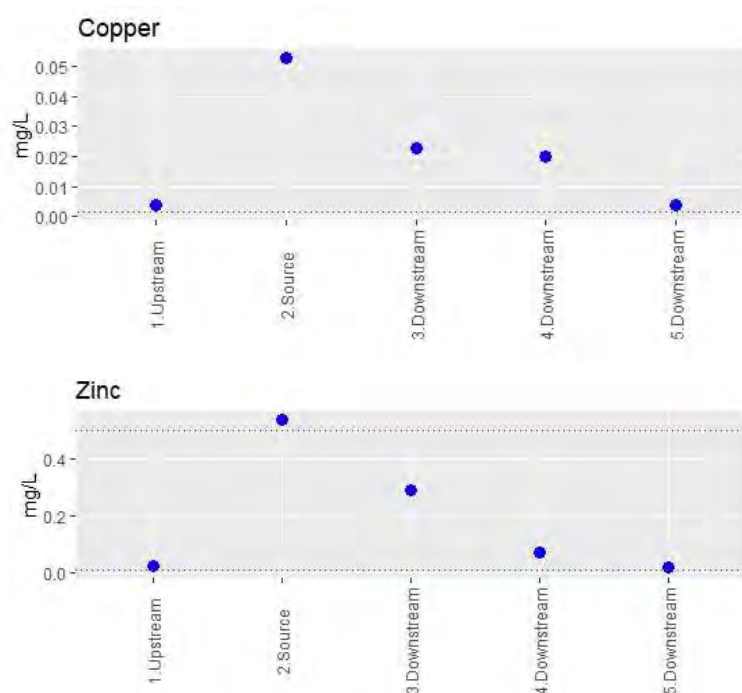
- Pollutants associated with firewater were elevated in the immediate vicinity of the stormwater outlet into Merlynston Creek. The graphs below show similar patterns for total hydrocarbons (TRH), polycyclic aromatic hydrocarbons (PAHs), solvents (acetone), and monocyclic aromatic hydrocarbons (MAHs) such as xylene and toluene.

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires



- Some pollutants were above ecosystem guidelines for waterways. For example, Toluene and Xylene were above ecosystem guideline values but were below human health guidelines values.
- Some heavy metals were elevated compared to background levels at the upstream site. Zinc was above the human health guideline value, but only at the source site.

Attachment 2 – Summary of EPA’s monitoring activities for the West Footscray and Campbellfield fires



- Jack Roper Reserve (5. Downstream) appears to show minimal impact from the firewater on the day immediately following the incident. Further samples were collected on Tuesday 9 April will assist in assessing extent of the plume downstream in Merlynston Creek on subsequent days. These results are expected from the lab next week (week commencing Monday 22 April). Based on results to date, water quality impacts beyond the upper reaches of Merlynston Creek are not expected.
- Levels of *E.coli* were elevated at Jack Roper Reserve, however, this seems unrelated to the fire incident because *E.coli* was not detected at the site immediately upstream of the lake.
- The current advice to avoid contact with Merlynston Creek and Jack Roper Reserve should remain in place during current recovery and remediation operations.

10/04/2019

- On 09/04/19, a full suite of samples were collected from Merlynston Creek- Otway Crescent Lake, National Business Park Wetland- Foden Reserve and Merlynston Creek- National Boulevard.
- In-situ samples were taken from Merlynston Creek- Otway Crescent Lake and National Business Park Wetland- Foden Reserve.
- National Business Park Wetland- Foden Reserve: Very low dissolved oxygen levels recorded at (0.16mg/L). No odour detected, sheen observed.
- No additional sampling is planned until results are received.

08/04/2019

- In situ results show low dissolved oxygen in Jack Roper reserve. Levels not likely to cause fish deaths could potentially be due to impact of fire but could also be unrelated.

07/04/2019

- Potential impact to Merlynston Creek (above Jack Roper reserve) and Jack Roper Reserve based on intermittent solvent odour (assuming that’s coming from the water) and lowish DO in Lake (although that may be background or partly due to the *E. coli* pollution last week). No visible pollution or fish deaths. From 6 April we know that further upstream there has been visible and measured impact.
- There were no observation of pollution and in-situ measurements show no impact at Merlynston Creek below Western Ring Road and Merri Ck.

06/04/2019

- EPA officers observed visible pollution to the Creek at National Boulevard directly downstream of a stormwater drain where firewater likely entered the Creek. A translucent, white film was observed and solvent odour was very strong. Dissolved oxygen was 0.02 mg/L and pH 5.8 (Upstream of the factory dissolved oxygen was 8.31 mg/L and pH of 6.75), which is likely due to fire water run-off. No signs are up, but this location is hard to access by the public (but it could be accessed).
- Further downstream at Barry Road and Jack Roper Reserve, which are easily accessible to the public, pollution was visible, but to less of an extent, Merlynston Creek at Barry Road was observed having a murky green-white discolouration, but was too shallow to collect insitu measurements. No signs were observed near Barry Road this will be followed up on 7/4/19. At Jack Roper Reserve Lake, a slight sheen was observed on the Lake (note: there was *E. coli* pollution to the Creek below National Boulevard and Lake last week, with an alert issued). Dissolved oxygen was recorded at 4.4. mg/L and pH was 6.1.
- Further upstream at National Boulevard, there is some firewater pollution present in reeds at the bottom of a stormwater drain where it comes out from underground to the Creek (but is not in the creek as its stagnant). This area is hard to access for the public and EPA is confirming if signs are up. EPA is followed up with MW about the risk this being washed into the creek by rain forecast for Tuesday (1-3mm). MW has made decision to not educt or bund the firewater pollution due to the site access difficulty and the presence of the reeds acting as a filter.
- No fish deaths were observed.

Attachment 1 – Summary of EPA operational taskforces

Further detail on the different operational task forces working on stockpiling and their findings.

The Environment Protection Authority Victoria (EPA) is involved in the following streams of work relating to stockpiling and associated issues across the combustible recyclable and chemical waste management and storage sectors.

Epping and Campbellfield chemical storage

Following the 30 August 2018 West Footscray warehouse fire, EPA intelligence and investigation identified 9 sites, linked to the West Footscray facility which contained large volumes of illegally stored dangerous goods and chemical waste (liquid solvents) in unlicensed warehouses in Melbourne's northern suburbs. An additional 5 sites were identified in 2019 following further leads and investigations into Bradbury Industrial Services Pty Ltd.

WorkSafe is now in control of these sites and EPA is working closely with WorkSafe on regulatory investigation and action. These sites are being cleaned up under WorkSafe improvement notices or are under active investigation. All waste removed from these sites has been treated or disposed of appropriately.

This work is led by an Executive Oversight Group (EOG) with members from WorkSafe, EPA, the Department of Environment, Land, Water and Planning (DELWP), Metropolitan Fire Brigade (MFB), Emergency Management Victoria (EMV), Country Fire Authority (CFA), Hume City Council and Whittlesea Council.

Proactive inspections following West Footscray fire targeting illegal/unlicensed and licensed sites

WorkSafe and EPA also conducted an inspection blitz following the fire. Between August 2018 and February 2019, EPA and WorkSafe jointly inspected 41 workplaces, with WorkSafe inspecting a total of 112 sites. The inspections focused on a combination of licensed and unlicensed sites in Melbourne's northern and western suburbs. No remedial notices and no sanctions have been issued by EPA.

Illegal chemical inspections (identification and ongoing inspection program)

Since February 2019, the proactive inspection work has focused on sites where intelligence indicates a likelihood there may be illegal waste storage of chemicals, dangerous goods, e-waste and/or prescribed industrial waste. These sites are being identified by drawing on intelligence from all agencies. It has also expanded to become a state-wide program.

Joint agency inspections (with at least two of: WorkSafe, EPA and MFB/CFA) are undertaken with the relevant council where possible, in a phased approach based on the potential risk profile of the sites. Fifty two joint agency inspections have been completed since February 2019. To date, EPA has issued four remedial notices and one investigation remains ongoing.

EPA and WorkSafe are developing an intelligence-based single plan for 2019/20 regulatory activity, which has included discussions with partner agencies about the inspection plan and the approach to co-regulation of this sector. This will include a review of activities to date (effectiveness of approach and lessons learnt) and the creation of a longer-term sustainable intelligence led intervention.

Inspection blitz of EPA-licensed sites post Campbellfield Fire (Bradbury's)

Following the Campbellfield fire on 5 April 2018, EPA initiated a rapid response inspection blitz of 63 EPA-licensed sites which were identified to be high risk due to the presence of liquid solvent and other prescribed industrial waste.

The inspections focused on whether licence conditions, including maximum waste volumes, compliance with waste transport certificate information and appropriate storage are being adhered to.

EPA inspected all 63 sites and this has resulted in:

- Five pollution abatement notices issued
- Five minor works pollution abatement notices issued
- One clean up notice issued
- One licence suspension in progress.

Resource Recovery Facilities Audit Taskforce

Following the July 2017 Coolaroo fire, the Victorian Government established the multi-agency Resource Recovery Facilities Audit Taskforce (the Taskforce) to inspect resource recovery facilities across the state and tackle stockpiles that might pose a fire risk that can lead to harm to human health and the environment. The establishment of the Taskforce acknowledges the role of multiple agencies in managing fire risks at these facilities. Chaired by EPA, the Taskforce comprises MFB, CFA, EMV, DELWP, WorkSafe and the Victorian Building Authority.

The Taskforce remains focused on auditing resource recovery facilities across Victoria to identify and regulate stockpiling of materials that pose a fire risk to ensure environment protection and community safety. Over 800 facilities storing combustible wastes have been identified, and those facilities considered extreme- or high-risk have been prioritised for inspection and regulatory action.

From July 2017 to 29 July 2019 the Taskforce has conducted 628 inspections at 169 high risk sites and has issued 186 remedial notices and 35 sanctions. The Taskforce will maintain a strong inspection regime.

On 2 August 2018, the Victorian Government released its *Managing fire risk at resource recovery facilities: Action Plan* in response to the Taskforce's December 2017 report. The Action Plan details a number of measures to assist in reducing the risks identified in the recycling industry and commits EPA and fire services to continue their current regulatory activities at extreme and high-risk sites until at least 2020.

Broderick Road site, Lara

EPA has used its powers to step in to clean up a waste stockpile located in Broderick Road, Lara. The Victorian Government has provided initial funding of \$30 million to maintain fire prevention measures and commence clean up of the site.

The former materials recycling site at 300-400 Broderick Road, Lara contains approximately 320,000 cubic metres of construction and demolition waste and poses a significant risk to community and the environment should a fire occur on site.

A cost recovery strategy will see EPA pursue the private operators involved (including the previous site occupiers, owners, and company directors) through their liquidators for the clean-up cost.

The site has been a focus for the Resource Recovery Facilities Audit Taskforce and a cross-agency oversight group including CFA, WorkSafe, City of Greater Geelong, EMV and the EPA.

The occupier and owner of the site have gone into liquidation and the funding available to the liquidators to maintain on-site security and fire prevention measures ended on 30 April 2019, which is why the EPA stepped in to make sure community safety is maintained.