

From: [Hazelwood Mine Fire Inquiry](#)
To: [Hazelwood Info Shared Mailbox](#)
Subject: Morwell Mine Fire Submission
Date: Monday, 10 August 2015 11:45:54 PM
Attachments: [Submission-to-mine-fire-inquiry-Deearne-Nicholson-10.8.15.docx](#)

Title: Mrs

First Name: Deearne

Surname: Nicholson

Email address: [REDACTED]

Home or office phone: [REDACTED]

Mobile: [REDACTED]

Content of submission (you can choose multiple): Health

Please select one of the following options: I acknowledge that my submission will be treated as a public document and may be published, quoted or summarised by the Inquiry.

Upload Submission:

<http://hazelwoodinquiry.vic.gov.au/wp-content/uploads/formidable/Submission-to-mine-fire-inquiry-Deearne-Nicholson-10.8.15.doc>

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To the board of inquiry,

My name is Deearne Nicholson and I live in Newborough

I was born in Morwell, married with 2 Children aged 19 & 24. I have lived in the Valley for the majority of my life, and at my current address for 23 years. We are about 10 km from the Morwell mine.

3 years ago I started working for a Registered Training Organisation, as a project assistant. The company trains Power plant operators and issues High Risk Licences for Boilers & Turbines. This gave me a small understanding of the workings of Power stations.

My husband is a linesman and operator for a transmission company

I was distressed because my brother, his wife and 4 children were in Morwell and without means to evacuate. I offered for them to come to our house but it was also smoky and they still had work and school to attend. Instead of becoming more distressed I decided to try to help somehow. I became a member of "Voices of the Valley" and became heavily involved over the next 18 months. I am still currently a member.

I became more interested in the emission side of things after the mine fire. I have learned much since then.

I am writing this submission in the hope that the future health of the residents of the Latrobe Valley will be taken care of with the right diagnostic tools and proactive management. People need to be offered free testing to determine their exposure levels. This can be done with hair or blood samples. The heavy metals accumulate and are hard to excrete.

There has been no briefing for doctors as far as I know, as to what tests to do for the variety of possible symptoms we may experience due to smoke exposure.

If people truly understood the toxins we were breathing in the amounts that we were for as long as we were they might take some of their health concerns more seriously and insist on proper testing, if the doctors had been briefed on what that might be.

I researched the chemicals from the VOC and ash Readings that were above the safe levels and from this I created the Community health Audit questionnaire.

After many months of work I submitted it to our group. It was suggested we try to get support for rolling it out widely, so I contacted the Latrobe community health centre, the local council, and others in hope they would support or assist but to no avail. Our committee didn't think we had the resources to do it properly without support. When the long term health study was announced we gave the document to them, in the hope they would do something with it but they have been slow getting any base line information.

I am fearful of what we will discover in the near future. It has been depressing living here since the mine fire. People worry about their health and many would love to move but can not afford to as property prices have plummeted drastically and don't look like increasing any time soon. Council have yet to adjust rates to suit the values here.

The future of our community in its current state relies on the use of coal but I, like many others would like to see different industries developed in our area. Since the mine fire we have a new coal processing plant and 5 new coal exploration licences. There has also been a recent announcement of a plant that transforms fly ash to magnesium which is hoped to be built here.

I am concerned about the added assault on the health of the community as some members don't seem to have recovered from the mine fire yet

It would be helpful to inform the community about the chemicals they have been exposed to. For example:

"I make this submission in my personal capacity. I am, however, a member of Voices of the Valley, and I am aware they have made a submission, which I support. "

Deearne Nicholson

Substances of exposure in the Latrobe Valley

Most commonly reported substances for the Industry: Electricity Generation [261]

Emissions	Transfers
<ul style="list-style-type: none">Total Volatile Organic CompoundsCarbon monoxideOxides of NitrogenSulfur dioxideParticulate Matter 10.0 um	<ul style="list-style-type: none">Manganese & compoundsCopper & compoundsMercury & compoundsZinc and compoundsNickel & compounds

<http://www.npi.gov.au/npidata/action/load/summary-result/criteria/anzsic-division/D/anzsic-sub-division/26/anzsic-group/261/industry-source/261/destination/ALL/source-type/INDUSTRY/subthreshold-data/Yes/substance-name/All/year/2013>

Most commonly reported substances for the Location: Latrobe Valley Region [A]

Industry Emissions	Industry Transfers	Diffuse Emissions
<ul style="list-style-type: none">Total Volatile Organic CompoundsCarbon monoxidePolycyclic aromatic hydrocarbons (B[a]P_{eq})Mercury & compoundsOxides of Nitrogen	<ul style="list-style-type: none">Copper & compoundsMercury & compoundsManganese & compoundsZinc and compoundsNickel & compounds	<ul style="list-style-type: none">Total Volatile Organic CompoundsToluene (methylbenzene)Xylenes (individual or mixed isomers)Total NitrogenTotal Phosphorus

<http://www.npi.gov.au/npidata/action/load/summary-result/criteria/year/2009/destination/AIR/airshed-catchment/9/source-type/DIFFUSE/subthreshold-data/No/substance-name/All;jsessionid=79086C9507082A2C67A2C7D5B9D8A7AB>

The following is a copy of the document created to get a base line study of people's health.

Community Health Audit

The Health department has failed to acknowledge the short term health effects of the Hazelwood Coal Mine Fire, or begin the long term health study, despite being presented with data and analysis from four consecutive community surveys. Our data collection indicates an increase in mortality rates, and many persistent health issues since the fire.

Voices of the Valley members have published a Community Health Audit to support the community effected by the fire whose health concerns are still being ignored.

Our goal is to collect some much needed evidence to identify the problems resulting from prolonged exposure to the toxic smoke and ash to the Health authorities. If the data reveals new trends and issues, it will provide grounds on which to request that necessary training, specialists and effective treatment programs be funded immediately.

We are inviting members of the community to fill in our questionnaire online, or with one of our community health auditors who will assist upon request.

Survey: Latrobe Valley Community Health Audit

IMPORTANT NOTICE TO LATROBE VALLEY COMMUNITY

The Health department has failed to acknowledge the short term health effects of the Hazelwood Coal Mine Fire, or begin the long term health study, despite being presented with data and analysis from four consecutive community surveys.

Our analysis shows a high probability of an increase in mortality rates, and many persistent health issues since the fire.

Voices of the Valley members are organising a Community Health Audit to support the casualties of the fire who are being ignored.

We are asking members of the community to fill in our questionnaire online, via email or with one of our community health auditors who will assist on request.

You will be asked lifestyle and other questions to establish any previous vulnerabilities and level of exposure. There is an extensive health section from which we can present an accurate base line picture of current health status and any issues that emerge.

Our goal is to collect the evidence required to identify the problems resulting from prolonged exposure to the toxic smoke and ash to the Health authorities.

If the data reveals new trends and issues, it will provide grounds on which to request that necessary training, specialists and effective treatment programs be funded immediately.

Your responses will be strictly confidential and data from this research will be reported only in the aggregate. Your information will be coded and will remain confidential. There are some required fields though you can skip most questions that are not applicable.

If you have questions at any time about the survey or the procedures, you may contact Deearne Nicholson at 0417 151683 or by email at healthaudit@votv.org.au

We refuse to be ignored any longer and ask for all residents' assistance to put forth the best argument for help we can with

.....Real facts from real people.....

Thank you very much for your time and support.

All information provided will be true and correct at the time of making this declaration.

I understand this information is protected under the privacy act and only deidentified data will be used to report on the collective health status of residents within the Latrobe Valley. You will be emailed or sent a copy of the completed report.

This data will be made available to the public but all personal details will be protected.

Please start with the survey now by checking the accept box below.

I Accept these terms

CONFIDENTIAL PERSONAL INFORMATION

First Name * :

Last Name * :

Address 1 * :

Address 2 :

City * : State * : Postcode * :

Phone:

Email Address:

Email Address - if you would like to be placed on Voices of the Valley mailing list:

I am interested in updating my health data in the future (please provide email address above)

YES

NO

DETAILS - If assisting or completing on behalf of another i.e. Children, friends, relatives

First Name * :

Last Name * :

Address 1:

Address 2:

City: State: Zip:

Phone * :

Email Address:

Relationship to respondent

What is your gender? *

- Male Female

What is your age? *

What is your marital status?

How many children do you have living with you?

- no children 1 child 2 children 3 children more than 4 children

How long have you lived in Latrobe Valley? *

Residential Status?

Which of the following categories best describes the industry you work in? *

GENERAL LIFESTYLE

	YES	NO	NOT APPLICABLE
Active Lifestyle normally	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Active Lifestyle since fires	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you drive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you receive home care	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Are you on a health care card	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fitness has decreased since fires	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you have any Dependants	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

EXPOSURE LEVELS

Health of baby at birth	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Respiratory functions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
General bodily function	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Development	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Temperament	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Health of baby since birth	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Details of pregnancy and birth (Not required):

OTHER HEALTH ISSUES OR RELEVANT INFORMATION:

TREATMENT OF SYMPTOMS DURING FIRE PERIOD

	YES	NO
Are you in the 'at risk' group defined by the Health Department?	<input type="radio"/>	<input type="radio"/>
Did you present at LRH	<input type="radio"/>	<input type="radio"/>
Did you present at another hospital	<input type="radio"/>	<input type="radio"/>
Did you go to your GP	<input type="radio"/>	<input type="radio"/>
Did you visit the health assessment centre	<input type="radio"/>	<input type="radio"/>
Was CO level checked	<input type="radio"/>	<input type="radio"/>
Was blood pressure normal	<input type="radio"/>	<input type="radio"/>
If no, did you have headaches also	<input type="radio"/>	<input type="radio"/>
If yes, did you have chest pain	<input type="radio"/>	<input type="radio"/>
Did you have pain/tingling in your face, hands or arms	<input type="radio"/>	<input type="radio"/>
Were you referred to a specialist	<input type="radio"/>	<input type="radio"/>
Were you sent to hospital	<input type="radio"/>	<input type="radio"/>
Were you admitted	<input type="radio"/>	<input type="radio"/>
Did you get a diagnosis	<input type="radio"/>	<input type="radio"/>
Were you effectively treated	<input type="radio"/>	<input type="radio"/>
Prescribed Antibiotics (amount of courses below)	<input type="radio"/>	<input type="radio"/>
Prescribed steroids	<input type="radio"/>	<input type="radio"/>
Do you have asthma	<input type="radio"/>	<input type="radio"/>
Do you have asthma action plan	<input type="radio"/>	<input type="radio"/>
Action plan was revised	<input type="radio"/>	<input type="radio"/>
Prescribed Asthma puffer during/since the fires	<input type="radio"/>	<input type="radio"/>
Prescribed preventer during/since the fires	<input type="radio"/>	<input type="radio"/>
Heavy metal test performed	<input type="radio"/>	<input type="radio"/>
Liver function test performed	<input type="radio"/>	<input type="radio"/>

Lung function test performed	<input type="radio"/>	<input type="radio"/>
Kidney function test performed	<input type="radio"/>	<input type="radio"/>
CT/MRI scan performed	<input type="radio"/>	<input type="radio"/>
ECG performed	<input type="radio"/>	<input type="radio"/>
Are you suffering mentally since the fires?	<input type="radio"/>	<input type="radio"/>
Are you suffering emotionally since the fires?	<input type="radio"/>	<input type="radio"/>
Are you suffering physically since the fires?	<input type="radio"/>	<input type="radio"/>

TREATMENT OF SYMPTOMS & RESULTS FROM HEALTH TESTS

	Answer
What was your blood pressure reading	<input type="text"/>
What was your CO2 reading	<input type="text"/>
How long did you have to wait at the hospital	<input type="text"/>
Rate your treatment from 1-10: (1 poor - 10 excellent)	<input type="text"/>
Amount of Antibiotic courses prescribed since fires	<input type="text"/>
Amount of Steroid courses prescribed since fires	<input type="text"/>
Heavy metal test results	<input type="text"/>
Liver function test results	<input type="text"/>
Lung function test results	<input type="text"/>
Kidney function test results	<input type="text"/>
CT/MRI scan results	<input type="text"/>
ECG results	<input type="text"/>
What was your diagnosis if any	<input type="text"/>
Name of your usual GP	<input type="text"/>

GENERAL ISSUES, COMMENTS OR SUGGESTIONS:

I have included some of the documents I used in my research. I have so many it was difficult to know what to include.

[Substances of most concern from Ash Testing Results 12/03/14](#)

Physical properties	Guidelines		Results Wallace St 12/03/14 (mg/kg) Ash
	A	B	
Aluminium (Al)	—	—	14000
Barium (Ba)	—	—	380
Chromium (Cr)	—	—	11
Iron (Fe)	—	—	28000
Strontium (Sr)	—	—	1300
Titanium (Ti)	—	—	450
Vanadium (V)	—	—	16

Substances of most concern from Morwell South VOC testing results 26–27 February

Compound	LOR (ppbv)	Level (ppbv)	LOR (ug/m3)	Level (ug/m3)
Acetone	1	8	2	19
Benzene	1	14	3	44
Ethanol	1	7.2	2	14
Hexane	0.5	1.2	2	4.4
Propene	0.5	42	0.9	72
Toluene	0.5	4.7	2	18

EPA Air Quality Readings – sample selection

		Data readings							Air quality index	
Date/time	Station	Carbon Monoxide	Ozone	Nitrogen Dioxide	Sulfur Dioxide	Particles as PM2.5	Particles as PM10	Visibility Reduction	AQI	Summary
	Units	ppm	ppb	ppb	ppb	ug/m3	ug/m3	none		
February 12, 2014 1.00 pm - 2.00 pm	Morwell South									OFFLINE
	Morwell East									OFFLINE
	Traralgon		41	9	0		265.4	21.24	904	VERY POOR
February 22, 2014 2.00 pm - 3.00 pm	Morwell South	5.8			6	501.1		29.18	2,005	VERY POOR
	Morwell East	0.5			2	40.4		2.30	161	VERY POOR
	Traralgon		16	3	2		50.8	1.31	64	GOOD
February 27, 2014 9.00 am - 10.00 am	Morwell South	5.0			0	280.6		1.64	1,122	VERY POOR
	Morwell East	0.3			0	35.1		0.32	141	POOR
	Traralgon		9	4	1		22.1	0.45	28	VERY GOOD

Upon researching Particulate Matter I realised that the PM1's are as dangerous as the PM2.5 & 10 if not more so. They go straight to your blood stream. The VOC readings therefore was where a lot of my research was focused.

I have included 3 EPA readings: If on the 12th Traralgon was AQI 904, and the day the VOC tests were done were AQI 1122, I cannot imagine the extent of the toxins the people of Morwell and surrounds were exposed to. If you note the above, it is impossible to even estimate what the VOC's were in the beginning days of the fire.

In the following graphs you can see how high the readings were, the Morwell East air monitoring station didn't come online until the 13th and the Morwell South one not until the 20th Feb.

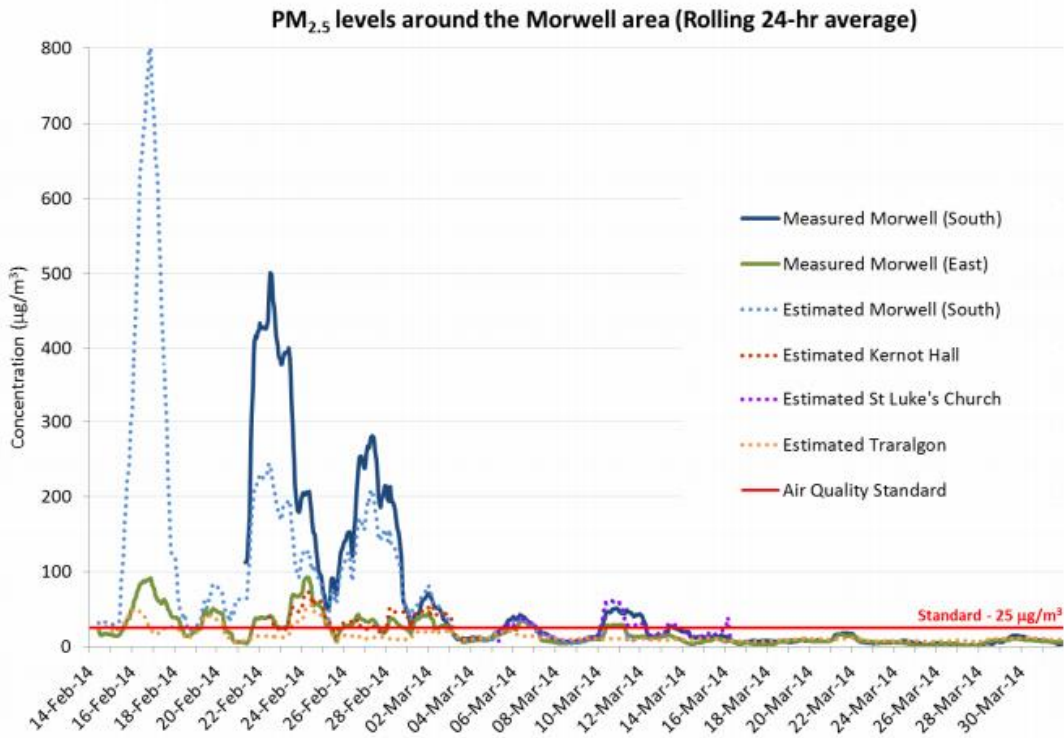
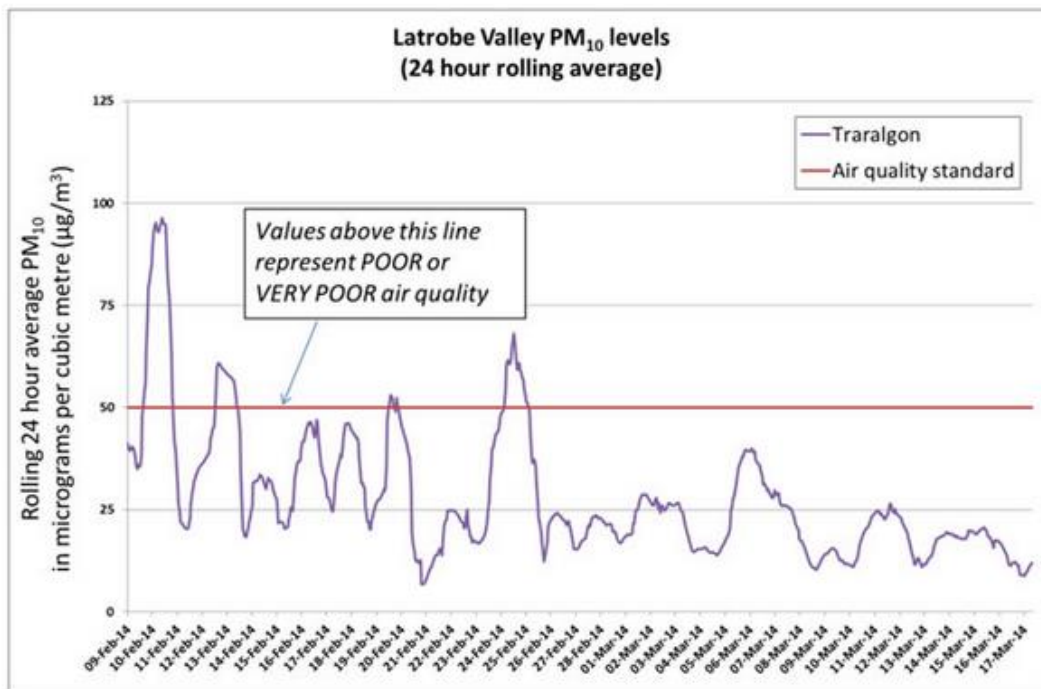


Figure 6: Estimated and measured PM_{2.5} levels at locations around Morwell during the Hazelwood mine fire. Highest levels (measured and estimated) were recorded at Morwell (South). The location of each monitoring point is shown in the map in Figure 5.

<http://www.epa.vic.gov.au/~media/Publications/1599.pdf>



PM10 levels at Traralgon EPA monitoring stations (PM10 was not measured at Morwell early in the fire).

<http://www.epa.vic.gov.au/hazelwood/hazelwood-mine-fire/testing-during-the-hazelwood-fire/air-quality-during-the-hazelwood-fire>

Particles- Terms and Definitions

There are a number of ways of expressing particle content. Most use mass concentration as the unit of measurement, however it is sometimes more useful to have a particle count based measurement.

- TSP: (total suspended particles) - fairly self explanatory. First standard but now rarely used since it became possible to measure different size classes. Measured by filter capture which used to be the only available method.
- PM10: Particles with an aerodynamic diameter less than 10 micrometers (microns). A large proportion, by mass, of these are from 'mechanical' sources like dust. Used to be regarded as 'respirable' but most larger particles are trapped and eliminated before entering the lungs. This is the main regulatory measurement (NEPM goal 50µg/m³/24hr) and is the size class referred to in most medical literature - mainly because the data is widely available.
- PM2.5: Particles with an aerodynamic diameter less than 2.5 micrometers. Now known to be respirable and to lodge at various levels in the lung, therefore more toxic. Regarded as a good indicator of combustion sourced particles – fires and vehicles. New NEPM advisory goal 25µg/m³ /24 hr. PM2.5 levels are only measured at a few stations and are not often publicly reported.
- PM1: Particles with an aerodynamic diameter less than 1 micrometer. Highly respirable and enter deep into the lungs. Some penetrate cell membranes or are soluble. Almost all modern diesel emissions are less than 1 micron. Is best indicator of vehicle emissions. Not monitored at all on a regular basis - difficult to measure reliably.

Particles and health impacts.

The 'medical evidence' indicates PM10 as being the 'cause' of widespread health impacts, with no safe threshold: 'A 10µg/m³ increase in PM10 results in a 10% increase in hospital admissions' is a common one, based on the '6 cities study' by Dockery, D.W. & Pope, C.A., in 1993. This is a correlative study and did not look at causation. Dr. Stephen Corbett (Acting Director, Health Protection Branch, NSW Health Department) 2002, reported "*Numerous studies, including those undertaken in Sydney, have noted a dose and response relationship between fine particle pollution and many of these health outcomes. That is, quite simply, the more you are exposed to, the greater the risk.*"

If PM10 increases and the composition stays the same, then PM1 also increases in the same proportion. This explains the '6 cities' type of study. If PM10 increases because of the addition of vehicle exhaust then the proportion changes and on a gram for gram basis the PM10 becomes more harmful. This is why concentrations of a sickness were found round the tunnel portals in old tunnels.

Studies which actually look at what causes the impacts invariably find that it is the smaller particles which do the harm, at least partly because they can actually get into the lungs and not be trapped by mucus. There is no level below which no harm is caused.

lvamninc.com.au/nepm.html

National Environmental Protection Measure (NEPM)

Is Federal legislation which sets nationally agreed goals and standards for protection of nominated parts of the environment. Most environmental legislation is set by state or territory governments. However, for some parts of the environment, agreement on standards has been reached between the state and territory governments, and is reflected in a NEPM.

Pollutant	Averaging period	Maximum (ambient) concentration	Goal within 10 years (maximum allowable exceedences)
Carbon monoxide	8 hours	9.0 ppm	1 day a year
Nitrogen dioxide	1 hour	0.12 ppm	1 day a year
	1 year	0.03 ppm	none
Photochemical oxidants (as ozone)	1 hour	0.10 ppm	1 day a year
	4 hours	0.08 ppm	1 day a year
Sulfur dioxide	1 hour	0.20 ppm	1 day a year
	1 day	0.08 ppm	1 day a year
	1 year	0.02 ppm	none
Lead	1 year	0.50 µg/m ³	none
Particles as PM10	1 day	50 µg/m ³	5 days a year

The PM2.5 Variation to the Air NEPM sets the following advisory reporting standards and goal for particles as PM2.5.

Pollutant	Averaging period	Maximum (ambient) concentration	Goal
Particles as PM2.5	1 day	25 µg/m ³	Goal is to gather sufficient data nationally to facilitate a review of the standard as part of the review of this Measure scheduled to commence in 2005.
	1 year	8 µg/m ³	

For more information on the Air NEPM, see the factsheet on [National Standards for Criteria Air Pollutants in Australia](#)

Please click on the following link to view the status of the National Clean Air Plan:

What are the Health effects of VOC exposure

The risk of health effects from inhaling any chemical depends on how much is in the air, how long and how often a person breathes it in. Scientists look at short-term (acute) exposures as hours to days or long-term (chronic) exposures as years to even lifetime.

Breathing low levels of VOCs for long periods of time may increase some people's risk of health problems. Several studies suggest that exposure to VOCs may make symptoms worse in people who have asthma or are particularly sensitive to chemicals. These are much different exposures than occupational exposures to VOCs.

VOCs refer to a group of chemicals. Each chemical has its own toxicity and potential for causing different health effects. Common symptoms of exposure to VOCs include:

Short-Term (Acute) to high levels of VOCs

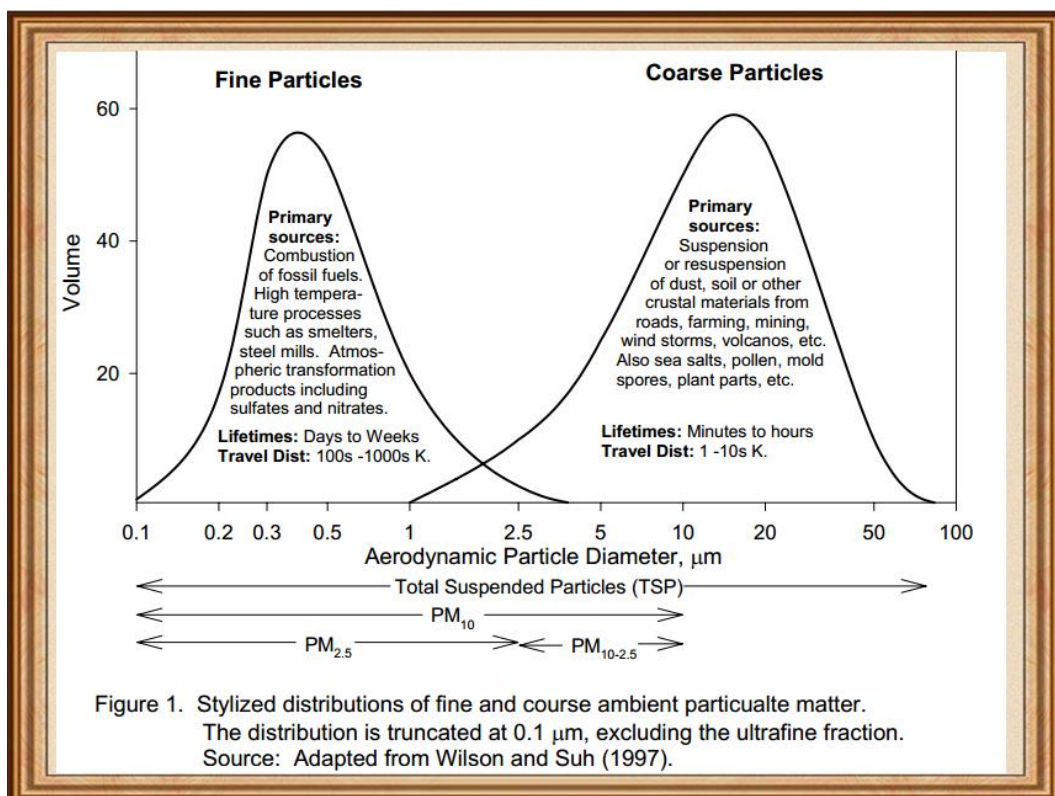
- ▶ Eye, nose and throat irritation
- ▶ Headaches
- ▶ Nausea / Vomiting
- ▶ Dizziness
- ▶ Worsening of asthma symptoms

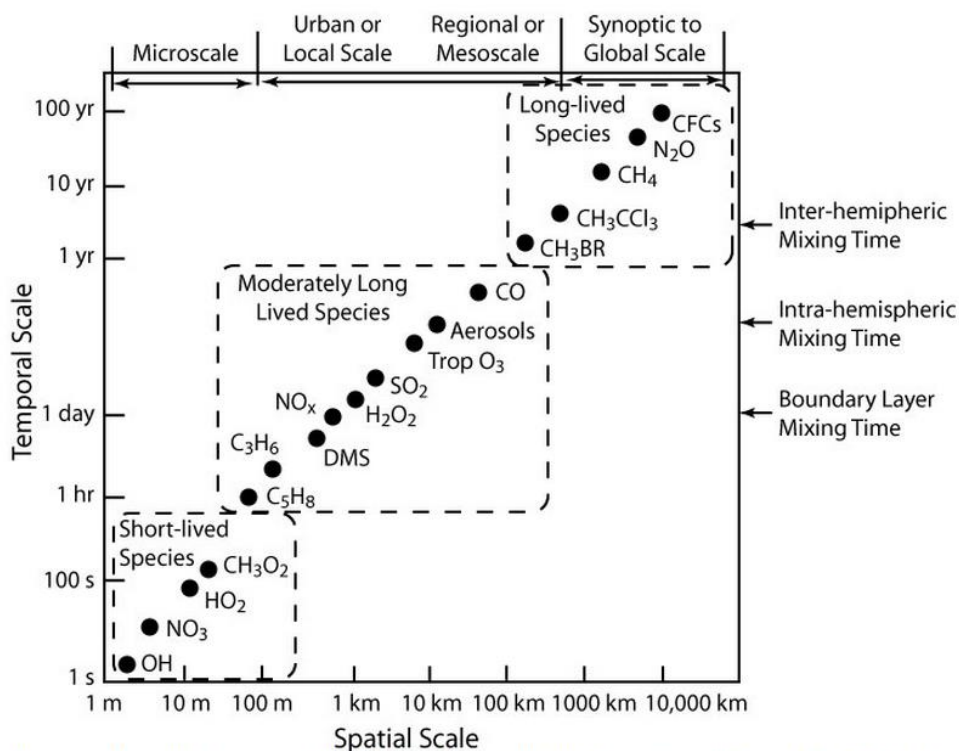
Long-Term (Chronic) to high levels of VOCs

Increased risk of:

- ▶ Cancer
- ▶ Liver damage
- ▶ Kidney damage
- ▶ Central Nervous System damage

<http://www.health.state.mn.us/divs/eh/indoorair/voc/>





The space and time scales of trace gases in the atmosphere. The moderately long-lived species contribute to regional and urban air pollution and smog. The long-lived species contribute to the ozone hole and greenhouse warming.

During the fires

PM_{2.5} levels were very high on occasions, particularly in the two weeks following the outbreak of the fire. The PM_{2.5} guideline was exceeded on 21 days at the monitoring station at Morwell South, and on 13 days at Morwell East. The PM₁₀ guideline was exceeded on 3 days at Traralgon and 8 days at Morwell South.

Carbon Monoxide (CO) levels were also recorded at high levels at particular times. There were three occasions when the CO standard was exceeded (21, 22, 26 February 2014). As the fire became more contained, the CO levels dropped significantly, and from 27 February 2014 onward, the CO levels have met the standard.

The visibility reduction (VR) measurements were very high for a significant period of the fire event, with levels exceeding acceptable visibility even four weeks after the onset of the fire.

As with bushfires and planned burns, this mine fire produced copious amounts of smoke with similar VR properties, but the main difference was that it lasted a long time and was very close to a large population.

The sulphur dioxide (SO₂) monitoring showed lower levels than anticipated from a coal fire of this scale. No significant SO₂ levels were detected in Morwell or Traralgon. The peaks that were detected were not considered to be very high and fitted within the range of what would be expected from normal power station emissions. No standards were exceeded.

All other compounds measured have been compared against a range of Australian and international criteria. With the exception of benzene, none was ever at a level that exceeded these criteria. Benzene levels marginally exceeded the standard on two occasions – once on 26 February 2014 and once on 27 February 2014.

Please visit the [Department of Health and Human Services website](http://www.deh.gov.au) for more detailed information on these results for benzene.

<http://www.epa.vic.gov.au/hazelwood/hazelwood-mine-fire/testing-during-the-hazelwood-fire/air-testing#health>

Morwell South VOC testing results 26–27 February

Volatile organic compounds test results

Morwell South (Morwell Bowling Club), 26–27 February 2014

Column headings are explained below the table.

Compound	LOR (ppbv)	Level (ppbv)	LOR (ug/m3)	Level (ug/m3)	CAS number
Propene	0.5	42	0.9	72	115-07-1
Dichlorodifluoromethane	0.5	0.81	2	4	75-71-8
Chloromethane	1	1.9	2	3.9	74-87-3
1,2-Dichlorotetrafluoroethane	0.5	<0.5	3	<3	76-14-2
Vinyl chloride	0.5	<0.5	1	<1	75-01-4
1,3-Butadiene	0.5	2.5	1	5.5	106-99-0
Bromomethane	2	<2	8	<8	74-83-9
Chloroethane	0.5	<0.5	1	<1	75-00-3
Acrolein	0.5	<0.5	1	<1	107-02-8
Acetone	1	8	2	19	67-64-1
Ethanol	1	7.2	2	14	64-17-5
2-Propanol	0.5	<0.5	1	<1	67-63-0
Trichlorofluoromethane	0.5	<0.5	3	<3	75-69-4
1,1-Dichloroethene	0.5	<0.5	2	<2	75-35-4
Dichloromethane	1	<1	3	<3	75-09-2
1,1,2-Trichloro-1,2,2 trifluoroethane	0.5	<0.5	4	<4	76-13-1
Carbon disulfide	0.5	<0.5	2	<2	75-15-0
trans-1,2-Dichloroethene	0.5	<0.5	2	<2	156-60-5
1,1-Dichloroethane	0.5	<0.5	2	<2	75-34-3
Methyl-tert-butylether (MTBE)	0.5	<0.5	2	<2	1634-04-4
Vinyl acetate	0.5	<0.5	2	<2	108-05-4
2-Butanone (MEK)	0.5	1.1	1	3.2	78-93-3
cis-1,2-Dichloroethene	0.5	<0.5	2	<2	156-59-2
Hexane	0.5	1.2	2	4.4	110-54-3
Chloroform	0.5	<0.5	2	<2	67-66-3
Ethyl Acetate	0.5	<0.5	2	<2	141-78-6

Compound	LOR (ppbv)	Level (ppbv)	LOR (ug/m3)	Level (ug/m3)	CAS number
Tetrahydrofuran	0.5	<0.5	1	<1	109-99-9
1,2-Dichloroethane	0.5	<0.5	2	<2	107-06-2
1,1,1-Trichloroethane	0.5	<0.5	3	<3	71-55-6
Benzene	1	14	3	44	71-43-2
Carbon tetrachloride	0.5	<0.5	3	<3	56-23-5
Cyclohexane	0.5	<0.5	2	<2	110-82-7
1,2-Dichloropropane	0.5	<0.5	2	<2	78-87-5
Bromodichloromethane	0.5	<0.5	3	<3	75-27-4
Trichloroethene	0.5	<0.5	3	<3	79-01-6
1,4-Dioxane	0.5	<0.5	2	<2	123-91-1
Heptane	0.5	0.91	2	3.7	142-82-5
Methyl methacrylate	0.5	<0.5	2	<2	80-62-6
cis-1,3-Dichloropropene	0.5	<0.5	2	<2	10061-01-5
4-Methyl-2-pentanone (MIBK)	0.5	<0.5	2	<2	108-10-1
trans-1,3-Dichloropropene	0.5	<0.5	2	<2	10061-02-6
1,1,2-Trichloroethane	0.5	<0.5	3	<3	79-00-5
Toluene	0.5	4.7	2	18	108-88-3
2-Hexanone (MBK)	0.5	<0.5	2	<2	591-78-6
Dibromochloromethane	0.5	<0.5	4	<4	124-48-1
1,2-Dibromoethane	0.5	<0.5	4	<4	106-93-4
Tetrachloroethylene	0.5	<0.5	3	<3	127-18-4
Chlorobenzene	0.5	<0.5	2	<2	108-90-7
Ethylbenzene	0.5	<0.5	2	<2	100-41-4
Bromoform	0.5	<0.5	5	<5	75-25-2
m & p-Xylenes	1	<1	4	<4	108-38-3 / 106-42-3
Styrene	0.5	<0.6	2	<2	100-42-5
1,1,2,2-Tetrachloroethane	0.5	<0.5	3	<3	79-34-5
o-Xylene	0.5	<0.5	2	<2	95-47-6
4-Ethyltoluene	0.5	<0.5	2	<2	622-96-8

Compound	LOR (ppbv)	Level (ppbv)	LOR (ug/m3)	Level (ug/m3)	CAS number
1,3,5-Trimethylbenzene	0.5	<0.5	2	<2	108-67-8
1,2,4-Trimethylbenzene	0.5	<0.5	2	<2	95-63-6
Benzyl Chloride	0.5	<0.5	3	<3	100-44-7
1,3-Dichlorobenzene	0.5	<0.5	3	<3	541-73-1
1,4-Dichlorobenzene	0.5	<0.5	3	<3	106-46-7
1,2-Dichlorobenzene	0.5	<0.5	3	<3	95-50-1
1,2,4-Trichlorobenzene	0.5	<0.5	4	<4	120-82-1
Hexachlorobutadiene	0.5	<0.5	5	<5	87-68-3
Naphthalene	0.5	0.97	3	5.1	91-20-3
Internal Standard: BCM (%Rec.)	1	119			74-97-5
Internal Standard: 1,4-DFB (%Rec.)	1	88			540-36-3
Internal Standard: MCB-d5 (%Rec.)	1	111			3114-55-4

LOR (limit of reporting)

The lowest reliable measurement provided by the test, this will be a different number for different units of measure. A result less than this can be considered as not detected.

ppbv (parts per billion by volume)

Unit of measure based on the volume of the compound (1ppbv = 0.0000001%).

ug/m3 (millionths of a gram per cubic metre)

Unit of measure based on the weight of the compound.

CAS number

A unique identification number assigned to every chemical substance by the Chemical Abstracts Service – helps make sure we know exactly what substance is being referred to.

Reference: EPA - unable to find link.

Ash sampling data at Wallace Street

Guidelines referred to in this table

A = National Environment Protection (Assessment of Site Contamination) Measure – HIL: Residential–A* (mg/kg)

B = *Soil hazard categorisation and management* (EPA publication [IWRG 621](#)) – Fill material upper limits** (mg/kg)

Physical properties	Guidelines		Results
	A	B	Wallace St 12/03/14 (mg/kg) Ash
pH			10.2
Metal			
Aluminium (Al)	–	–	14000
Antimony (Sb)	–	–	<5
Arsenic (As)	100	20	<5
Barium (Ba)	–	–	380
Beryllium (Be)	60	–	<5
Boron (B)	4500	–	250
Cadmium (Cd)	20	3	0.3
Chromium (Cr)	–	–	11
Chromium 6 (CrVI)	100	1	–
Cobalt (Co)	100	–	44
Copper (Cu)	6000	100	16
Iron (Fe)	–	–	28000
Lead (Pb)	300	300	8
Manganese (Mn)	3800	–	380
Mercury (Hg)	40	1	0.39
Molybdenum (Mo)	–	40	<5
Nickel (Ni)	400	60	19
Selenium (Se)	200	10	7
Silver (Ag)	–	10	<5
Strontium (Sr)	–	–	1300

Physical properties	Guidelines		Results
	A	B	Wallace St 12/03/14 (mg/kg) Ash
Thallium (Tl)	–	–	<5
Thorium (Th)	–	–	<5
Tin (Sn)	–	50	<5
Titanium (Ti)	–	–	450
Uranium (U)	–	–	<5
Vanadium (V)	–	–	16
Zinc (Zn)	7400	200	110

Also in the report but not included here:

Polycyclic aromatic hydrocarbons (PAHs)

Halogenated volatiles

Solvents

Monocyclic aromatic hydrocarbons (MAHs)

Reference: <http://www.epa.vic.gov.au/hazelwood/hazelwood-mine-fire/testing-during-the-hazelwood-fire/ash-testing-data-during-the-fire/ash-data-wallace-st>

OSHA Occupational Chemical Database

Occupational Safety & Health Administration

COMPOUNDS OF CONCERN ESPECIALLY TO LONG TERM HEALTH

VOC TESTING RESULTS

Chemical Name ↑	CAS # ↓	Formula	Synonyms	Get Report
1,3 BUTADIENE	106-99-0	C4H6	Biethylene; Bivinyll, Butadiene; Divinyll, Erythrene; Vinylethylene	Get Report
ACETONE	67-64-1	C3H6O	Dimethyl ketone; Ketone propane; 2-Propanone	Get Report
BENZENE	71-43-2	C6H6	Benzol; Phenyl hydride	Get Report
DICHLORODIFLUOROMETHANE	75-71-8	CCl2F2	Difluorodichloromethane; Fluorocarbon 12; Freon12; Genetron12; Halon122; Propellant 12; Refrigerant 12	Get Report
ETHANOL	64-17-5	C2H6O	Alcohol; Cologne spirit; Ethanol; EtOH; Grain alcohol	Get Report
HEPTANES	142-82-5	C7H16	Heptane; normal-Heptane	Get Report
NAPHTHALENE	91-20-3	C10H8	Naphthalin; Tar camphor; White tar	Get Report
TOLUENE	108-88-3	C7H8	Methyl benzene; Methyl benzol; Phenyl methane; Toluol	Get Report
N-HEXANE	110-54-3	C6H14	Hexane; Hexyl hydride; normal-Hexane	Get Report
ETHYL METHYL KETONE	78-93-3	C4H8O	Ethyl methyl ketone; MEK; Methyl acetone; Methyl ethyl ketone	Get Report
METHYL CHLORIDE	74-87-3	CH3Cl	Chloromethane; Monochloromethane	Get Report
PROPYLENE OXIDE	75-56-9	C3H6O	1,2-Epoxy propane; Methyl ethylene oxide; Methyloxirane; Propene oxide; 1,2-Propylene oxide	Get Report

PHYSICAL AND CHEMICAL PROPERTIES OF COAL FROM MORWELL MINE

ARSENIC METAL AND INORGANIC COMPOUNDS, as As	7440-38-2	As	Arsenic metal: Arsenia Other synonyms vary depending upon the specific As compound.	Get Report
ANTIMONY METAL AND COMPOUNDS, as Sb	7440-36-0	Sb	Antimony metal; Antimony powder; Stibium	Get Report
BERYLLIUM METAL AND COMPOUNDS, as Be	7440-41-7	Be	Beryllium metal: Beryllium Other synonyms vary depending upon the specific beryllium compound.	Get Report
BORON TRIFLUORIDE	7637-07-2	BF3	Boron fluoride; Trifluoroborane	Get Report
CADMIUM METAL AND COMPOUNDS, as Cd	7440-43-9	Cd	Cadmium metal: Cadmium. Other synonyms vary depending upon the specific cadmium compound	Get Report
CHROMIUM(III) COMPOUNDS, as Cr	7440-47-3	Cr	Synonyms vary depending upon the specific Chromium(III) compound. [Note: Chromium(III) compounds include soluble chromic salts.]	Get Report

COBALT METAL AND INORGANIC COMPOUNDS as Co	7440-48-4	Co	Cobalt metal dust; Cobalt metal fume	Get Report
COPPER, DUSTS AND MISTS, as Cu	7440-50-8	Cu	Copper metal dusts; Copper metal fumes	Get Report
COPPER, FUME, as Cu	7440-50-8	Cu	Copper metal dusts; Copper metal fumes	Get Report
LEAD (INORGANIC, DUSTS & FUMES), as Pb	7439-92-1	Pb	Lead metal; Plumbum	Get Report
MANGANESE (COMPOUNDS AND DUST), as Mn	7439-96-5	Mn	Manganese metal: Colloidal manganese; Manganese-55 Synonyms of other compounds vary depending upon the specific manganese compound.	Get Report
MERCURY (ARYL COMPOUNDS), as Hg	7439-97-6	Hg	Mercury metal: Colloidal mercury; Metallic mercury; Quicksilver Synonyms of "other" Hg compounds vary depending upon the specific compound.	Get Report
MERCURY, ELEMENTAL AND INORGANIC COMPOUNDS, as Hg	7439-97-6	Hg	Mercury metal: Colloidal mercury; Metallic mercury; Quicksilver Synonyms of "other" Hg compounds vary depending upon the specific compound.	Get Report
MOLYBDENUM, METAL AND INSOLUBLE COMPOUNDS, as Mo	7439-98-7	Mo	Molybdenum metal	Get Report
MOLYBDENUM, SOLUBLE COMPOUNDS, as Mo	7439-98-7	Mo	Molybdenum metal	Get Report
NICKEL, INSOLUBLE COMPOUNDS, as Ni	7440-02-0	Ni	Synonyms of other nickel compounds vary depending upon the specific compound.	Get Report
NICKEL, SOLUBLE COMPOUNDS as Ni	7440-02-0	Ni	Synonyms of other nickel compounds vary depending upon the specific compound.	Get Report
SELENIUM AND COMPOUNDS, as Se	7782-49-2	Se	Elemental selenium; Selenium alloy	Get Report
SILVER METAL DUST, as Ag	7440-22-4	Ag	Silver metal: Argentum	Get Report
SILVER, SOLUBLE COMPOUNDS, as Ag	7440-22-4	Sg	Synonyms of soluble silver compounds such as Silver nitrate (AgNO ₃) vary depending upon the specific compound.	Get Report
STRONTIUM CHROMATE, as Cr	7789-06-2	CrH ₂ O ₄ .Sr		Get Report
TIN METAL AND INORGANIC COMPOUNDS, EXCEPT SnH ₄ AND OXIDES, as Sn	7440-31-5	Sn	Metallic tin; Tin flake; Tin metal; Tin powder	Get Report
TIN, ORGANIC COMPOUNDS as Sn	7440-31-5	Sn	Synonyms vary depending upon the specific organic tin compound. [Note: Also see specific listing for Cytexatin.]	Get Report
VANADIUM, RESPIRABLE DUST & FUME, as V ₂ O ₅	1314-62-1	O5V2	Divanadium pentoxide dust; Vanadic anhydride dust; Vanadium oxide dust; Vanadium pentoxide dust Other synonyms vary depending upon the specific vanadium compound.	Get Report
ZINC OXIDE, DUST	1314-13-2	ZnO	Zinc peroxide	Get Report
ZINC OXIDE, FUME	1314-13-2	ZnO	Zinc peroxide	Get Report

Chemical Listing and Documentation for Immediately Dangerous To Life or Health Concentrations Revised IDLH Values (as of 3/1/95)

<http://www.cdc.gov/niosh/idlh/intridl4.html>

Metal:	Safe level	Ash sample	symptoms
aluminium	1mg/kg/day or 1mg per cubic metre	14000 mg/kg	Neurological: all the nervous system, affecting sensory, cognitive and motor function. All sources remind that products of aluminium production are level 1 carcinogens. Does being released from a fire in the open cut at these high levels count as ' a product of aluminium production?
Barium	0.5mg per m3	300 mg/kg	Cardiovascular gastrointestinal, reproductive
Chromium	-	11mg/kg	Immune, respiratory and respiratory effects.group 1 carcinogen.
Iron	-	28000mg/kg	Level 1 carcinogen: liver,heart, pancreas endocrine system, joints
strontium	-	1300	Strontium a highly unstable compound that breaks down on contact with water to form strontium hydroxide, Sr(OH) ₂ and strontium carbonate, SrCO ₃ Strontium hydroxide is a caustic alkali and is a severe respiratory, eye and skin irritant. Strontium breaks down in air to form strontium oxide and strontium nitride. Health impact on children include impaired bone growth, tumours in blood forming cells and birth defects. Finely powdered strontium metal is pyrophoric meaning it will ignite spontaneously in air at room temperature. sample levels have a different measurement mg/kg and this requires a conversion: but.....
Titanium (Test for titanium dioxide or titanium metal)	0.01	450 mg/kg	Eyes skin lungs. Can seriously damage lungs.
Vanadium	0.00008ppm	16 mg/kg	Respiratory tract attacker, causes nose bleeds and onset of asthma
PAHs and MAHs			All level 2 carcinogens
Solvents: toulene			The central nervous system (CNS) is the primary target organ for toluene toxicity in both humans and animals for acute (short-term) and chronic (long-term) exposures. CNS dysfunction and narcosis have been frequently observed in humans acutely exposed to elevated airborne levels of toluene; symptoms include fatigue, sleepiness, headaches, and nausea. CNS depression has been reported to occur in chronic abusers exposed to high levels of toluene. Chronic inhalation exposure of humans to toluene also causes irritation of the upper respiratory tract and eyes, sore throat, dizziness, and headache. Human studies have reported developmental effects, such as CNS dysfunction, attention deficits, and minor craniofacial and limb anomalies, in the children of pregnant women exposed to high levels of toluene or mixed solvents by inhalation. EPA has concluded that that there is inadequate information to assess the carcinogenic potential of toluene.

EPA Air Quality Samples from Feb & Mar 2014

EPA Air Quality Feb Mar 2014										
		Data readings							Air quality index	
Date/time	Station	Carbon Monoxide	Ozone	Nitrogen Dioxide	Sulfur Dioxide	Particles as PM2.5	Particles as PM10	Visibility Reduction	AQI	Summary
	Units	ppm	ppb	ppb	ppb	ug/m3	ug/m3	none		
February 9, 2014 11.00 pm - 12.00 pm	Morwell South									OFFLINE
	Morwell East									OFFLINE
	Traralgon		12	5	2		84.4	4.22	180	VERY POOR
February 10, 2014 12 midnight - 1.00 am	Morwell South									OFFLINE
	Morwell East									OFFLINE
	Traralgon		13	4	1		139.9	9.55	406	VERY POOR
February 12, 2014 1.00 pm - 2.00 pm	Morwell South									OFFLINE
	Morwell East									OFFLINE
	Traralgon		41	9	0		265.4	21.24	904	VERY POOR
February 12, 2014 4.00 pm - 5.00 pm	Morwell South									OFFLINE
	Morwell East									OFFLINE
	Traralgon		24	5	0		51.0	2.67	114	POOR
February 19, 2014 9.00 am - 10.00 am	Morwell South									OFFLINE
	Morwell East					33.1		16.50	702	VERY POOR
	Traralgon		26	7	1		176.2	10.88	463	VERY POOR
February 21, 2014 12 noon - 1.00 pm	Morwell South	1.1			2	121.0		15.95	679	VERY POOR
	Morwell East	0.1			1	5.5		2.13	91	FAIR
	Traralgon		12	4	3		44.7	1.10	56	GOOD
February 21, 2014 1.00 pm - 2.00 pm	Morwell South	2.6			4	140.4		24.37	1,037	VERY POOR
	Morwell East	0.3			3	7.0		3.55	151	VERY POOR

EPA Air Quality Feb Mar 2014

		Data readings							Air quality index	
Date/time	Station	Carbon Monoxide	Ozone	Nitrogen Dioxide	Sulfur Dioxide	Particles as PM2.5	Particles as PM10	Visibility Reduction	AQI	Summary
	Units	ppm	ppb	ppb	ppb	ug/m3	ug/m3	none		
	Traralgon									OFFLINE
February 21, 2014 2.00 pm - 3.00 pm	Morwell South	4.3			7	171.8		31.44	1,338	VERY POOR
	Morwell East	0.4			3	10.5		3.46	147	POOR
	Traralgon						0.0	0.56	24	VERY GOOD
February 21, 2014 3.00 pm - 4.00 pm	Morwell South	6.5			14	222.2		42.47	1,807	VERY POOR
	Morwell East	0.6			3	13.4		3.03	129	POOR
	Traralgon		11	4	2		9.8	0.95	40	GOOD
February 21, 2014 4.00 pm - 5.00 pm	Morwell South	8.3			15	272.7		33.06	1,407	VERY POOR
	Morwell East	0.7			4	17.5		4.42	188	VERY POOR
	Traralgon		13	4	2		125.0	1.64	156	VERY POOR
February 21, 2014 5.00 pm - 6.00 pm	Morwell South	10.3			20	306.5		35.35	1,504	VERY POOR
	Morwell East	1.0			5	22.6		4.83	206	VERY POOR
	Traralgon		16	3	2		60.6	1.82	77	FAIR
February 21, 2014 8.00 pm - 9.00 pm	Morwell South	14.4			11	409.3		23.96	1,637	VERY POOR
	Morwell East	1.5			7	35.4		6.37	271	VERY POOR
	Traralgon		14	2	1		56.3	2.20	94	FAIR
February 21, 2014 11.00 pm - 12.00 pm	Morwell South	11.7			6	417.5		10.11	1,670	VERY POOR
	Morwell East	1.1			1	37.2		0.59	149	POOR
	Traralgon		10	4	0		12.6	0.52	22	VERY GOOD
	Morwell South	9.1				424.9			1,700	VERY POOR

EPA Air Quality Feb Mar 2014

		Data readings							Air quality index	
Date/time	Station	Carbon Monoxide	Ozone	Nitrogen Dioxide	Sulfur Dioxide	Particle s as PM2.5	Particl es as PM10	Visibility Reduction	AQI	Summary
	Units	ppm	ppb	ppb	ppb	ug/m3	ug/m3	none		
February 22, 2014 1.00 am - 2.00 am	Morwell East	0.8				37.1			148	POOR
	Traralgon						11.2		14	VERY GOOD
February 22, 2014 3.00 am - 4.00 am	Morwell South	5.5			0	429.0		1.71	1,716	VERY POOR
	Morwell East	0.6			0	38.9		0.34	155	VERY POOR
	Traralgon		12	2	0		5.8	0.42	18	VERY GOOD
February 22, 2014 5.00 am - 6.00 am	Morwell South	2.7			0	428.0		0.45	1,712	VERY POOR
	Morwell East	0.1			0	38.5		0.30	154	VERY POOR
	Traralgon		6	7	1		8.1	0.48	20	VERY GOOD
February 22, 2014 8.00 am - 9.00 am	Morwell South	0.9			0	426.7		0.39	1,707	VERY POOR
	Morwell East	0.1			0	38.3		0.32	153	VERY POOR
	Traralgon		5	6	1		8.4	0.46	20	VERY GOOD
February 22, 2014 11.00 am - 12 noon	Morwell South	1.4			1	437.5		15.79	1,750	VERY POOR
	Morwell East	0.1			0	38.5		1.38	154	VERY POOR
	Traralgon		10	4	2		8.3	0.50	21	VERY GOOD
February 22, 2014 2.00 pm - 3.00 pm	Morwell South	5.8			6	501.1		29.18	2,005	VERY POOR
	Morwell East	0.5			2	40.4		2.30	161	VERY POOR
	Traralgon		16	3	2		50.8	1.31	64	GOOD
February 22, 2014 5.00 pm - 6.00 pm	Morwell South	10.3			5	464.9		22.68	1,860	VERY POOR
	Morwell East	0.9			1	35.7		1.58	143	POOR

EPA Air Quality Feb Mar 2014

		Data readings							Air quality index	
Date/time	Station	Carbon Monoxide	Ozone	Nitrogen Dioxide	Sulfur Dioxide	Particles as PM2.5	Particles as PM10	Visibility Reduction	AQI	Summary
	Units	ppm	ppb	ppb	ppb	ug/m3	ug/m3	none		
	Traralgon		16	2	1		21.4	0.81	34	GOOD
February 22, 2014 9.00 pm - 10.00 pm	Morwell South	10.7			3	414.9		8.75	1,660	VERY POOR
	Morwell East	0.8			1	25.8		0.66	103	POOR
	Traralgon		13	1	0		26.7	1.06	45	GOOD
February 23, 2014 12 midnight - 1.00 am	Morwell South	6.2			0	387.6		0.45	1,550	VERY POOR
	Morwell East	0.4			0	25.6		0.52	103	POOR
	Traralgon		10	3	0		13.5	0.47	20	VERY GOOD
February 23, 2014 4.00 am - 5.00 am	Morwell South	2.3			2	384.3		15.22	1,537	VERY POOR
	Morwell East	0.1			0	24.6		0.71	98	FAIR
	Traralgon		0	6	0		15.8	0.66	28	VERY GOOD
February 23, 2014 8.00 am - 9.00 am	Morwell South	1.9			0	394.6		0.57	1,578	VERY POOR
	Morwell East	0.2			0	26.0		0.58	104	POOR
	Traralgon		2	5	0		28.9	0.65	36	GOOD
February 23, 2014 10.00 am - 11.00 am	Morwell South	2.0			0	396.6		8.39	1,586	VERY POOR
	Morwell East	0.4			4	29.8		5.81	247	VERY POOR
	Traralgon		15	7	3		55.1	2.37	101	POOR
February 23, 2014 1.00 pm - 2.00 pm	Morwell South	2.1			33	360.9		8.74	1,444	VERY POOR
	Morwell East	1.5			46	55.1		15.95	679	VERY POOR
	Traralgon		57	18	26		141.0	7.50	319	VERY POOR
	Morwell South	2.4			35	327.8		7.28	1,311	VERY POOR

EPA Air Quality Feb Mar 2014

		Data readings							Air quality index	
Date/time	Station	Carbon Monoxide	Ozone	Nitrogen Dioxide	Sulfur Dioxide	Particles as PM2.5	Particles as PM10	Visibility Reduction	AQI	Summary
	Units	ppm	ppb	ppb	ppb	ug/m3	ug/m3	none		
February 23, 2014 2.00 pm - 3.00 pm	Morwell East	1.8			63	64.1		11.79	502	VERY POOR
	Traralgon		75	17	22		136.2	7.17	305	VERY POOR
February 23, 2014 8.00 pm - 9.00 pm	Morwell South	2.9			0	189.7		0.95	759	VERY POOR
	Morwell East	1.2			2	66.9		0.90	268	VERY POOR
	Traralgon		27	6	2		25.4	0.93	40	GOOD
February 24, 2014 2.00 am - 3.00 am	Morwell South	2.6			1	202.7		10.11	811	VERY POOR
	Morwell East	0.7			5	72.0		7.53	320	VERY POOR
	Traralgon		3	6	0		18.0	0.76	32	VERY GOOD
February 24, 2014 4.00 am - 5.00 am	Morwell South	3.4			2	204.8		12.97	819	VERY POOR
	Morwell East	2.0			10	86.5		11.41	486	VERY POOR
	Traralgon		3	6	1		110.7	7.08	301	VERY POOR
February 24, 2014 5.00 am - 6.00 am	Morwell South	4.0			2	202.7		7.75	811	VERY POOR
	Morwell East	2.3			6	90.4		4.80	362	VERY POOR
	Traralgon		3	7	1		155.3	10.75	457	VERY POOR
February 24, 2014 10.00 am - 11.00 am	Morwell South	2.9			1	206.7		5.72	827	VERY POOR
	Morwell East	1.8			3	90.7		3.47	363	VERY POOR
	Traralgon		18	6	2		112.3	4.63	197	VERY POOR
	Morwell South	1.8			2	151.9		10.84	608	VERY POOR

EPA Air Quality Feb Mar 2014										
		Data readings							Air quality index	
Date/time	Station	Carbon Monoxide	Ozone	Nitrogen Dioxide	Sulfur Dioxide	Particles as PM2.5	Particles as PM10	Visibility Reduction	AQI	Summary
	Units	ppm	ppb	ppb	ppb	ug/m3	ug/m3	none		
February 24, 2014 3.00 pm - 4.00 pm	Morwell East	0.9			12	54.8		5.21	222	VERY POOR
	Traralgon		67	10	9		78.5	2.73	116	POOR
February 24, 2014 6.00 pm - 7.00 pm	Morwell South	1.6			0	130.1		0.80	520	VERY POOR
	Morwell East	0.8			1	57.9		0.45	231	VERY POOR
	Traralgon		17	5	2		14.7	0.44	19	VERY GOOD
February 24, 2014 10.00 pm - 11.00 pm	Morwell South	0.9			0	97.6		0.37	390	VERY POOR
	Morwell East	0.4			0	54.1		0.32	216	VERY POOR
	Traralgon		9	5	1		6.2	0.37	16	VERY GOOD
February 25, 2014 1.00 am - 2.00 am	Morwell South	0.1				80.7			323	VERY POOR
	Morwell East	0.0				50.9			204	VERY POOR
	Traralgon						8.6		11	VERY GOOD
February 25, 2014 9.00 am - 10.00 am	Morwell South	1.1			0	54.7		25.53	1,086	VERY POOR
	Morwell East	0.1			0	27.3		0.78	109	POOR
	Traralgon		6	6	0		15.3	0.68	29	VERY GOOD
February 25, 2014 10.00 am - 11.00 am	Morwell South	2.5			1	72.2		38.28	1,629	VERY POOR
	Morwell East	0.1			0	25.4		0.79	102	POOR
	Traralgon		12	6	0		22.5	0.71	30	VERY GOOD
February 25, 2014 2.00 pm - 3.00 pm	Morwell South	3.2			0	85.7		0.65	343	VERY POOR
	Morwell East	0.1			0	17.3		0.64	69	FAIR

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		Data readings							Air quality index	
Date/time	Station	Carbon Monoxide	Ozone	Nitrogen Dioxide	Sulfur Dioxide	Particles as PM2.5	Particles as PM10	Visibility Reduction	AQI	Summary
	Units	ppm	ppb	ppb	ppb	ug/m3	ug/m3	none		
	Traralgon		43	3	0		21.9	0.64	43	GOOD
February 25, 2014 6.00 pm - 7.00 pm	Morwell South	2.0			0	78.4		20.22	860	VERY POOR
	Morwell East	0.3			6	8.8		5.04	214	VERY POOR
	Traralgon		42	4	1		57.0	0.57	71	FAIR
February 25, 2014 9.00 pm - 10.00 pm	Morwell South	4.2			1	118.7		10.51	475	VERY POOR
	Morwell East	1.0			4	21.6		3.93	167	VERY POOR
	Traralgon		18	6	2		91.4	3.52	150	VERY POOR
February 26, 2014 2.00 am - 3.00 am	Morwell South	5.1			0	139.5		4.57	558	VERY POOR
	Morwell East	1.1			0	26.7		0.60	107	POOR
	Traralgon		16	1	0		8.2	0.53	23	VERY GOOD
February 26, 2014 9.00 am - 10.00 am	Morwell South	1.9			0	147.2		0.43	589	VERY POOR
	Morwell East	0.1			0	28.4		0.37	113	POOR
	Traralgon		9	5	0		16.0	0.51	22	VERY GOOD
February 26, 2014 1.00 pm - 2.00 pm	Morwell South	4.4			2	151.7		17.96	764	VERY POOR
	Morwell East	0.5			4	33.0		4.28	182	VERY POOR
	Traralgon		14	4	5		20.9	0.69	29	VERY GOOD
February 26, 2014 4.00 pm - 5.00 pm	Morwell South	7.5			3	206.9		19.15	828	VERY POOR
	Morwell East	0.8			2	40.8		2.14	163	VERY POOR
	Traralgon		18	2	2		34.6	0.74	43	GOOD

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		Data readings							Air quality index	
Date/time	Station	Carbon Monoxide	Ozone	Nitrogen Dioxide	Sulfur Dioxide	Particles as PM2.5	Particles as PM10	Visibility Reduction	AQI	Summary
	Units	ppm	ppb	ppb	ppb	ug/m3	ug/m3	none		
February 26, 2014 5.00 pm - 6.00 pm	Morwell South	9.0			4	230.5		23.97	1,020	VERY POOR
	Morwell East	0.9			2	42.7		2.09	171	VERY POOR
	Traralgon		15	5	3		18.4	0.44	23	VERY GOOD
February 26, 2014 9.00 pm - 10.00 pm	Morwell South	9.4			3	253.6		8.61	1,014	VERY POOR
	Morwell East	1.0			3	37.2		2.84	149	POOR
	Traralgon		14	4	0		34.4	1.29	55	GOOD
February 27, 2014 12 midnight - 1.00 am	Morwell South	6.0			0	238.5		0.36	954	VERY POOR
	Morwell East	0.6			0	35.5		0.39	142	POOR
	Traralgon		9	5	0		16.7	0.64	27	VERY GOOD
February 27, 2014 3.00 am - 4.00 am	Morwell South	4.3			2	256.3		20.20	1,025	VERY POOR
	Morwell East	0.5			1	33.6		0.95	135	POOR
	Traralgon		5	6	0		17.6	0.82	35	GOOD
February 27, 2014 7.00 am - 8.00 am	Morwell South	5.5			2	274.5		14.29	1,098	VERY POOR
	Morwell East	0.4			2	34.2		2.64	137	POOR
	Traralgon		5	8	0		19.9	0.64	27	VERY GOOD
February 27, 2014 9.00 am - 10.00 am	Morwell South	5.0			0	280.6		1.64	1,122	VERY POOR
	Morwell East	0.3			0	35.1		0.32	141	POOR
	Traralgon		9	4	1		22.1	0.45	28	VERY GOOD
February 27, 2014 1.00 pm - 2.00 pm	Morwell South	2.8			1	259.6		4.74	1,038	VERY POOR
	Morwell East	0.5				32.5			130	POOR

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		Data readings							Air quality index	
Date/time	Station	Carbon Monoxide	Ozone	Nitrogen Dioxide	Sulfur Dioxide	Particles as PM2.5	Particles as PM10	Visibility Reduction	aqi	Summary
	Units	ppm	ppb	ppb	ppb	ug/m3	ug/m3	none		
	Traralgon		17	2	1		14.7	0.43	18	VERY GOOD
February 27, 2014 5.00 pm - 6.00 pm	Morwell South	2.3			5	198.5		9.91	794	VERY POOR
	Morwell East	0.4			4	25.0		1.24	100	POOR
	Traralgon		18	3	3		25.8	0.52	32	VERY GOOD
February 27, 2014 7.00 pm - 8.00 pm	Morwell South	4.7			13	185.7		23.47	999	VERY POOR
	Morwell East	0.3			0	23.1		0.38	92	FAIR
	Traralgon		14	2	0		18.8	0.43	24	VERY GOOD
February 28, 2014 12 midnight - 1.00 am	Morwell South	5.6			1	214.2		2.70	857	VERY POOR
	Morwell East	0.4			0	20.8		0.53	83	FAIR
	Traralgon		13	3	0		13.4	0.42	18	VERY GOOD
February 28, 2014 4.00 am - 5.00 am	Morwell South	4.3			6	193.8		27.06	1,151	VERY POOR
	Morwell East	1.5			2	33.3		13.09	557	VERY POOR
	Traralgon		7	5	0		12.9	0.43	18	VERY GOOD
February 28, 2014 7.00 am - 8.00 am	Morwell South	4.4			0	199.6		0.56	798	VERY POOR
	Morwell East	1.6			0	37.4		0.43	150	VERY POOR
	Traralgon		7	9	0		21.3	0.52	27	VERY GOOD
February 28, 2014 11.00 am - 12 noon	Morwell South	2.8			0	181.8		0.86	727	VERY POOR
	Morwell East	0.8			0	34.3		0.48	137	POOR
	Traralgon		16	3	0		15.8	0.49	21	VERY GOOD

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		Data readings							Air quality index	
Date/time	Station	Carbon Monoxide	Ozone	Nitrogen Dioxide	Sulfur Dioxide	Particles as PM2.5	Particles as PM10	Visibility Reduction	AQI	Summary
	Units	ppm	ppb	ppb	ppb	ug/m3	ug/m3	none		
February 28, 2014 4.00 pm - 5.00 pm	Morwell South	0.1			0	146.2		0.48	585	VERY POOR
	Morwell East	0.0			2	29.0		0.43	116	POOR
	Traralgon		20	5	0		15.6	0.44	20	VERY GOOD
February 28, 2014 9.00 pm - 10.00 pm	Morwell South	0.1			0	60.5		0.58	242	VERY POOR
	Morwell East	0.1			0	25.5		0.55	102	POOR
	Traralgon	0.0	12	4	0		30.7	0.64	38	GOOD

Reference: <http://www.epa.vic.gov.au/Our-work/Monitoring-the-environment/Air-quality-bulletins/Hourly-air-quality-data-table>

