

**ANNUAL REPORT TO THE NEPC ON THE
AIR TOXICS NEPM
BY VICTORIA
FOR THE YEAR ENDED 31 DEC 2010**

The National Environment Protection Measure (Air Toxics) [AT NEPM], was made in December 2004. The AT NEPM establishes a nationally consistent monitoring and reporting framework for five priority air toxics – benzene, formaldehyde, toluene, xylene and PAH (as benzo(α)pyrene, B α P). The AT NEPM also contains monitoring investigation levels for each of the air toxics that can be used to assess the results of any monitoring that is conducted as part of the implementation of the NEPM. The 8-year goal of the NEPM is to collect sufficient data nationally to facilitate development of standards for these pollutants.

This report presents the status of air toxic monitoring in Victoria during 2010, sites identified for monitoring in 2011 and a summary of the reassessment of identification of site 1 and site 2 locations.

PART 1: IDENTIFICATION OF SITES

STAGE 1 AND STAGE 2 SITES

Sites previously identified and assessed as Stage 2 sites are listed in Appendix A. Air monitoring results generally aligned with the levels estimated by air pollution modelling or air emissions inventories. Air pollution modelling and air emission inventories may not effectively capture smaller local specific sources and diffuse sources such as emissions from some small to medium enterprises and estimate the resulting local impact adequately. Therefore more work is required to understand and evaluate potential impacts from industrial precincts where numerous small to medium enterprises are operating.

The Dandenong South industrial zone 1 & 2 in Melbourne was identified as a large industrial precinct where numerous industries including waste treatment facilities, prescribed waste landfill and small to medium enterprises operate close to residential areas. Another area identified surrounds a former prescribed landfill in Tullamarine near Melbourne's international air port.

During 2011, monitoring for benzene, toluene and xylene is being undertaken in residential areas surrounding the Dandenong South industrial precinct and surrounding the former prescribed landfill in Tullamarine. Screening for formaldehyde will also be undertaken at the Tullamarine site to evaluate the impacts from nearby airport formaldehyde emissions. There is no data or limited data on formaldehyde levels near major airports in Victoria. Details of the sampling site locations are listed in Appendix A.

PART 2: REPORTING OF MONITORING OF AIR TOXICS

STAGE 2 SITES AND MONITORING PROGRAM

No additional monitoring was undertaken during 2010. Air toxics monitoring was completed at Campbellfield in early 2009. Air toxic monitoring has not measured levels exceeding the monitoring investigation levels (air quality objectives) in the AT NEPM. Therefore no further air toxics monitoring was undertaken during 2010 pending the NEPC AT NEPM Mid-Term Review.

PART 3: REPORTING ON ASSESSMENT AND ACTION TAKEN TO MANAGE AIR TOXICS

The results of monitoring at all sites shows that the monitoring investigation levels have not been exceeded. Therefore it has not been necessary to take any action to manage air toxics beyond existing programs.

PART 4: REASSESSMENT OF IDENTIFICATION OF STAGE 1 AND STAGE 2 SITE LOCATIONS

During 2010 a review of EPAV Stage 1 and Stage 2 Sites commenced using the new procedures for the identification and prioritisation of Stage 1 and Stage 2 Sites from the AT NEPM Mid-Term Review. The review completed by June 2011 include the analyses of predicted concentrations for benzene, toluene, xylene and formaldehyde from modelling using the 2006 and most current air emissions inventory, meteorology and population for 2006 for Victoria. No modelling was conducted for benzo (a)pyrene. In addition, to modelling an air emissions inventory analysis for the Port Phillip Region was also conducted which included benzo(a)pyrene , benzene, toluene, xylene, formaldehyde and general PAH sites.

The review found all of the predicted concentrations of ambient air toxics or estimated emissions were below the Monitoring Investigation Level (MIL) specified in the Air Toxics NEPM. Motor vehicle emissions were found to be the major sources at the sites with the highest levels. Based on air pollution modelling, highest predicted concentrations relative to each air toxic MIL ranged from 22% for benzene, 15% for formaldehyde, 0.05% and 1.5% for Toluene, 0.7% and 2.2% for xylene. Highest benzo(a)pyrene emissions were estimated to be 66% of MIL based on air pollution inventory estimates. Unlike the modelling predictions, the inventory estimates identified one other site for toluene associated with industry emissions in the higher category of 66% of the MIL. The benzo(a)pyrene and toluene sites identified will be considered in future monitoring programs.

Past air monitoring results generally aligned with the levels estimated in the review.

APPENDIX A: STAGE 2 SITES AND MONITORING PROGRAM

Air toxics with possible elevated concentrations	Stage 1 or 2 site number	Location of Stage 2 Site				Air toxics monitored	Timeframe for monitoring	Size of exposed population (persons/km ²)
		MGA Easting (m)	MGA Northing (m)	Location	Site Type			
Benzene, Toluene, Benzo(α)pyrene, Formaldehyde	S2-BNZ4 S2-TOL6 S2-BAP4 S2-FAD2	321279.08	5814434.06	Carlton	Inner City Residential	Benzene, Toluene, Xylene, B(α)P, Formaldehyde	May 2006 – May 2007	5689
Benzene	S2-BNZ5	321351.43	5811105.08	South Melbourne	Inner City Residential	Benzene, Toluene, Xylene	May 2006 – May 2007	4690
Benzene	S2-BNZ6a	314335.39	5809839.31	Newport	Western Industrial	Benzene, Toluene, Xylene	Jan 2006 – Jan 2007	1522
Benzene	S2-BNZ6b	314335.39	5809839.31	Newport (Spotswood)	Western Industrial	Benzene, Toluene, Xylene	Jan 2006 – Jan 2007	1522
Benzo(α)pyrene, Formaldehyde	S2-BAP2 S2-FAD1	337807.72	5824971.98	Eltham	Northeast Residential	B(α)P, Benzene, Toluene, Xylene, Formaldehyde	May 2005 - Sep 2005 Dec 2005 – March 2006	2361
Benzo(α)pyrene, formaldehyde	S2-BAP3 S2-FAD4	352031.99	5818579.67	Mooroolbark	Northeast Residential	B(α)P	Feb 2007 – Jan 2008	2193
Benzo(α)pyrene, Formaldehyde	S2-BAP5 S2-FAD5	440394.90	5780652.24	Traralgon	Regional	Benzene, Toluene, Xylene B(α)P, Formaldehyde	Feb 2007 – Jan 2008	Total population 20,0000
Benzo(α)pyrene	B2-BAP6	319202.08	5828821.07	Campbellfield	Northern Industrial Residential	Benzo(α)Pyrene	Feb 2008 – Feb 2009	2329
Benzene, Toluene, Xylene	S1-BNZa1 S1-TOLa1 S1-XYL a1	312,365.942	5,827,626.757	Westmeadows	Western Residential	Benzene, Toluene, Xylene	Feb 2011-Feb2012	846
Benzene, Toluene, Xylene Formaldehyde	S1-BNZa2 S1-TOLa2 S1-XYL a2 S1-FADa1	312,391.095	5,827,921.407	Westmeadows	Western Residential	Benzene, Toluene, Xylene	Feb 2011-Feb2012	846
Benzene, Toluene, Xylene	S1-BNZa3 S1-TOLa3 S1-XYL a3	312,601.567	5,827,713.687	Westmeadows	Western Residential	Benzene, Toluene, Xylene	Feb 2011-Feb2012	846
Benzene, Toluene, Xylene	S1-BNZa4 S1-TOLa4 S1-XYL a4	313,784.786	5,827,118.902	Gladstone Park	Western Residential	Benzene, Toluene, Xylene	Feb 2011-Feb2012	2778

Air toxics with possible elevated concentrations	Stage 2 site number	Location of Stage 2 Site				Air toxics monitored	Timeframe for monitoring	Size of exposed population (persons/km ²)
		MGA Easting (km)	MGA Northing (km)	Location	Site Type			
Benzene, Toluene, Xylene	S1-BNZa5 S1-TOLa5 S1-XYLa5	345,143.001	5,793,037.326	Doveton	Eastern Industrial	Benzene, Toluene, Xylene	Apr 2011-Apr 2012	762
Benzene, Toluene, Xylene	S1-BNZa6 S1-TOLa6 S1-XYLa6	342,359.578	5,792,600.762	Dandenong South	Eastern Industrial	Benzene, Toluene, Xylene	Apr 2011-Apr 2012	1992
Benzene, Toluene, Xylene	S1-BNZa7 S1-TOLa7 S1-XYLa7	342,796.142	5,787,900.695	Bangholme	Eastern Industrial	Benzene, Toluene, Xylene	Apr 2011-Apr 2012	50
Benzene, Toluene, Xylene	S1-BNZa8 S1-TOLa8 S1-XYLa8	346,566.859	5,787,589.14	Lynbrook	Eastern Industrial	Benzene, Toluene, Xylene	Apr 2011-Apr 2010	2173
Benzene, Toluene, Xylene	S1-BNZa9 S1-TOLa9 S1-XYLa9	346,498.067	5,788,875.025	Hampton Park	Eastern Industrial	Benzene, Toluene, Xylene	Apr 2011-Apr 2010	2225