

## MONITORING OF AIR QUALITY IN THE CITYLINK PROJECT

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### BACKGROUND

The CityLink project includes two tunnels, the Burnley and Domain Tunnels, under the Yarra River. Emissions from these tunnels are discharged via two ventilation stacks, viz: the Burnley Tunnel Ventilation Stack, located between Coppin Street and Rooney Street, Richmond; and the Domain Tunnel Ventilation Stack, located in Grant Street, Southbank.

### AIR QUALITY MONITORING

Four separate forms of air quality monitoring are associated with the CityLink project, viz:

1. *In Tunnel* – TLO's licence issued by EPA requires monitoring of visibility, carbon monoxide (CO) and oxides of nitrogen (NO<sub>x</sub>) at several points within the tunnels. Data from this monitoring is used to control the operation of the ventilation systems for the tunnels.  
Air speed and direction are also continuously monitored at the exit portals. TLO operate under a licence that requires no portal emissions. All emissions are discharged via the stacks (except in the case of an emergency).
2. *Ventilation Stacks* - Carbon monoxide (CO), oxides of nitrogen (NO<sub>x</sub>), particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub><sup>i</sup>) and temperature are monitored continuously at the discharge stacks.

<sup>i</sup> Particles with sizes less than 10 and 2.5 µm

TLO operates with a licence setting mass rates (kg/hr) for the stack discharge. Licence objectives have been set to ensure ambient air quality objectives are not exceeded.

3. *Ambient* – EPA requires TLO to operate ambient air quality stations at Grant St (Southbank) and Madden Grove (Burnley) to monitor carbon monoxide (CO), oxides of nitrogen (NO<sub>x</sub>), particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub> by TEOM<sup>ii</sup> and HiVol<sup>iii</sup>) and meteorological data (temperature, wind speed and direction). The location of the stations was chosen to enable detection of impacts from the ventilation stacks.
4. *Special Monitoring* – Numerous special monitoring programs have been initiated as part of the CityLink project. These include:
  - 4.1 *EPA Audit of TLO Stations* – EPA's mobile air monitoring laboratory (MOLAB) was located adjacent to TLO's Southbank station from July-September 2000 in order to audit and review the TLO station.
  - 4.2 *Stack Wake Monitoring* – TLO's licence issued by EPA requires monitoring near the ventilation stack at Burnley to investigate the effect of stack wake on the dispersion of emissions. This study was

<sup>ii</sup> TEOM = Tapered Element Oscillating Microbalance. An on-line method for measuring particles

<sup>iii</sup> HiVol = Particle measurement made with a high volume sampler. Particles are collected on a filter and weighed.

initiated as a result of the independent review commissioned by EPA into “Emission Control Technology on the CityLink Tunnels”. The study will be completed in early 2002. Note, that EPA’s MOLAB (mobile laboratory) was located at this site prior to TLO obtaining its own mobile laboratory.

4.3 *Community Monitoring Station* – EPA requires TLO to operate a community air monitoring station, at sites to be nominated by a community panel. TLO will commence this monitoring at the completion of the stack wake monitoring program.

## REPORTING OF CITYLINK AIR QUALITY INFORMATION

*In Tunnel* data is reported on the following day to EPA via E-mail.

*Ventilation stack* data (unvalidated) is displayed on the following day on EPA’s Web site ([http://www.epa.vic.gov.au/Air/Citylink/stack\\_data.asp](http://www.epa.vic.gov.au/Air/Citylink/stack_data.asp)).

*Ambient* data (unvalidated) is displayed in real time on EPA’s web site (<http://www.epa.vic.gov.au/Air/Bulletins/aqhour.asp>).

The validated data from the *ambient* and *ventilation stack* monitoring is provided to EPA on a 3 monthly (seasonal) basis. The monitoring activities are reported in a NATA<sup>iv</sup> endorsed report that is

<sup>iv</sup> National Association of Testing Authorities

reviewed by an independent auditor. TLO prepares a quarterly report for the Community and Local Councils. EPA has been performing a review of the quarterly data provided, which includes a comparison of the ambient air quality to the EPA network. This review is tabled at the regular Environment Management Committee meetings.

Breaches of the emissions limit must be reported to EPA within 24 hours of the incident. The notification must include the cause of the breach and action taken to avoid a repeat breach.

## EPA’S ROLE IN CITYLINK AIR MONITORING

EPA’s role in the CityLink project includes ensuring that it is operated within its licence conditions controlling ventilation stack discharges and portal emissions. In this role, EPA has an on-going commitment to ensure auditing and review of the TLO monitoring program.

EPA has an additional role to monitor the impact that the project may be having on ambient air quality. EPA will continue to monitor and review the data and reports provided by TLO to:

- investigate any exceedences of ambient air quality objectives. This is essential for addressing the impacts on human health and well-being.
- assess trends in air quality through comparison of TLO data to the EPA network over the longer term. By assessing trends, EPA will be in a position to proactively identify and address the potential impacts of CityLink on ambient air quality.

## SUMMARY

The combination of in tunnel, ventilation stack, ambient and stack wake monitoring provides EPA with a comprehensive system to identify and proactively manage ambient air quality issues that may arise from the CityLink project.