

EASTLINK WORKS APPROVAL APPLICATION WA59307

RESPONSE TO CONFERENCE FINDINGS – PUBLIC AND STATUTORY SUBMISSIONS

SUMMARY OF THE PROCESS

The application for works approval for the EastLink tunnels ventilation system was made available to the public on 5 April 2006 for a period of 28 days. Submissions closed on 3 May 2006.

A public conference under Section 20B of the *Environment Protection Act 1970* was held on 25 May 2006. All those who made submissions were invited to attend and present their submissions.

An independent Chairperson was appointed to convene the conference. The Chairperson provided a report on the key findings from the submissions and conference presentations. EPA considered the findings of the Chairperson in making its assessment of the works approval application. This document summarises EPA's response to the findings and recommendations of that report.

THE ASSESSMENT BY EPA

The decision to grant works approval

EPA granted works approval on 5 September 2006.

The basis for the decision was that the application had met the requirements of the *Environment Protection Act 1970* and all relevant State environment protection policies.

In making its assessment, EPA undertook a rigorous assessment process including independent air quality modelling and extensive additional information requests of the applicant.

Key findings of the assessment were:

- The ventilation system is a best-practice design for road tunnels.
- The worst-case emission scenario prepared by the applicant is robust, as it is based on in-tunnel air quality limits and observation of monitored data from the Burnley tunnel.
- The approach to modelling is appropriate for the assessment of stack emissions in a valley environment.
- Emissions from the ventilation system will have a negligible impact on air quality and are within levels specified to protect people's health.
- Noise from the ventilation system meets existing Victorian standards for noise emissions from commercial premises.
- EPA has required that water from the tunnel is discharged directly to sewer, pending assessment of wastewater quality and its suitability or otherwise for disposal via a wetland to Wollert Creek. Water management

is designed to enable protection of local waterways such as Wollert Creek and Mullum Mullum Creek.

These findings are supported by experience with the CityLink project, where extensive monitoring has found no detectable change in air quality associated with tunnel emissions.

Whilst EPA's assessment shows that air quality impacts are negligible, it is important that the community's concerns are properly addressed. EPA is therefore requiring air quality monitoring in the tunnel, in the stacks and in the surrounding areas for a period of time before and after the tunnels are open for road traffic. The results of this monitoring will be publicly available.

EPA'S RESPONSE TO PUBLIC CONCERNS

During the period that ConnectEast's works approval was made available for public comment, a number of submissions were received and EPA sought additional information from ConnectEast. This additional information contributed significantly to the overall assessment of the works approval.

EPA is now satisfied that all relevant concerns and environmental requirements have been adequately addressed.

The key concerns raised, and EPA's responses, are set out below.

Modelling of air quality

Issue of concern: The modelling approach applied to predict the air quality impact of tunnel ventilation stacks was inadequate.

Some public submissions supported the modelling approach taken in the works approval application, while others questioned whether the types of models used were appropriate.

EPA is satisfied the modelling approach used to predict emissions from the tunnel ventilation stacks is appropriate for the works approval assessment.

Three models were used by the applicant – CALPUFF, AUSPLUME and AUSROADS. EPA approved a proposal by the applicant to use these models in September 2005.

CALPUFF is an internationally recognised air quality model that allows the complex airflow associated with valleys to be assessed. EPA approved the use of CALPUFF as the primary model for assessing the air quality impacts of the EastLink ventilation stacks.

AUSPLUME is the regulatory air quality model for Victoria. EPA recognises AUSPLUME has limitations when modelling airflow in a valley. The modelling outcomes showed that CALPUFF produced higher ground-level concentrations than AUSPLUME. This model comparison is consistent with expectations and confirms the need to use a model such as CALPUFF in this assessment.

AUSROADS is EPA's regulatory model for the impact of open road transport corridor impacts on air quality. It was used to enable the cumulative impact of the ambient air quality, the emissions from the stacks and emissions from the 'new' sections of

road either side of the tunnel to be assessed against EPA's rigorous air quality standards.

EPA is satisfied that the use of AUSROADS is appropriate for this application.

EPA recognises that other models are available for assessing air quality impacts but believes the models used were suitable for assessing impacts in this case.

Issue of concern: The topography information used in the modelling was incorrect.

EPA is satisfied the correct topographic data was used in the assessment.

EPA compared the topographic data used in the air quality modelling with topographic data from GeoScience Australia. The comparison showed the modelled topography closely matched the topographic data from GeoScience Australia.

Issue of concern: The ambient air quality data used in the modelling was incorrect.

Ambient air quality data used in the application was from EPA's Alphington air monitoring station. Two years of data was also available from a site adjacent to Schwerkolt Cottage near the proposed eastern portal and ventilation stack.

A comparison by EPA of the Alphington and Schwerkolt Cottage data showed that air quality at the two sites was not significantly different, although in general the measured concentrations of air pollutants at Alphington were slightly higher than at Schwerkolt Cottage.

Using the ambient Alphington air quality data to assess the impact of the tunnel ventilation stacks

allowed for a 'worst-case' assessment to be made against air quality standards.

EPA considers that for the purpose of assessment, the use of data from Alphington is appropriate.

Issue of concern: The impact of vehicle emissions was understated because truck numbers were underestimated and the contribution of road dust was not taken into account.

EPA is satisfied that the method used to determine emission concentrations from the EastLink stacks is inclusive of all relevant factors – to such an extent that it can be considered a 'worst-case' model.

The 'worst-case' emissions that were modelled by the applicant are based on in-tunnel air quality limits, the amount of air the ventilation system can push out, and data from CityLink's Burnley tunnel.

The carbon monoxide emission rate was calculated according to the in-tunnel safe operating limit (as a concentration) and the amount of air the ventilation system can push out of the stacks.

The emission rates for particles were worked out using comparisons with CityLink Burnley tunnel monitoring data (inclusive of road dust).

Using this approach predicts emission rates that are higher than would be predicted using vehicle emissions alone, and significantly higher than the actual expected emission rates.

Modelling using these 'worst-case' emissions showed negligible impact on surrounding air quality.

Issue of concern: Impacts on houses closest to the EastLink tunnels and other sensitive locations such as Ringwood Heights Primary School and Pinemont Preschool have not been taken into account.

EPA is satisfied the ‘receptors’ (locations where impact has been assessed) reported in the application give a representative assessment of the air quality impact of the tunnels at sensitive locations.

In response to submissions made by the public, EPA requested additional receptors to be reported by the applicant, including Ringwood Heights Primary School and Pinemont Preschool.

These additional receptors were considered in EPA’s assessment. The impacts at all receptors, including those sited close to the tunnels, were found to be at acceptable levels.

Issue of concern: The potential health impacts of particle emissions from the stacks will be increased as they interact with high-voltage power lines.

EPA is satisfied that particle emissions from the stacks will have negligible impact on air quality in surrounding areas.

The level of particle emissions from the stacks will not be significant, and scientific research reviewed to date is inconclusive on the potential of high-voltage powerlines to ionise particles, and whether these ionised particles represent an increased risk to human health.

EPA will continue to monitor developments in scientific research about the interaction of high-voltage powerlines with air pollutants.

Monitoring of air quality

Issue of concern: That the public be advised of the location of air quality monitoring stations and, where possible, have input to their location.

As a condition of the works approval, EPA requires three locations to be monitored for air quality for a period of time before and after the tunnels are open for road traffic.

It is proposed that there will be one monitoring site for the western stack and two for the eastern stack. Possible monitoring sites in discussion are in the vicinity of Schwerkolt Cottage (east), Chaim Court (east) and Hillcrest Reserve (west).

The exact locations will be chosen in consideration of the predicted emission plume, the availability of suitable monitoring sites and access to the land.

Ventilation system design

Issue of concern: Technology to remove contaminants from air should be part of the tunnels’ ventilation design.

EPA is satisfied the proposed design meets best practice and the requirement to remove certain air contaminants to the ‘maximum extent achievable’, as defined in relevant State environment protection policy.

The proposed design does not include any technology to remove contaminants from the stacks’ emissions.

The ventilation system design proposed for each tunnel takes air in at the entrance portal, prevents air leaving the exit portal and discharges the

captured air and vehicle emissions by a stack situated at the exit portal.

The stacks are designed to minimise the potential for emissions to be trapped in the Mullum Mullum valley.

Air-cleaning technology such as electrostatic precipitators (for removing particles from the air) and equipment to remove nitrogen dioxide has been installed in a limited number of tunnels in Europe and Asia.

This technology is mainly being used to achieve acceptable air quality inside the tunnel. The proposed ventilation design for EastLink ensures in-tunnel air quality without the need for air-cleaning technology.

The emissions from the EastLink stacks will have a negligible impact on the air quality outside the tunnel. Using cleaning technology in this case would increase energy-use, waste-generation and overall cost but would not deliver any appreciable benefit to the environment.

While there is a State environment protection policy requirement that a range of air contaminants posing high potential health risks must be removed to the 'maximum extent achievable', there is no specific equipment available to remove the low concentrations of these contaminants in emissions from road ventilation stacks.

While claims have been made about the ability to remove contaminants, these claims are yet to be proven in an operating tunnel.

The additional energy, generation of wastes and overall cost of using cleaning technology will not

deliver any appreciable benefit in terms of human health risk.

Issue of concern: Visual amenity of the stacks.

EPA has considered the functionality of the ventilation stacks and is satisfied the height of the stacks provides adequate dispersion of emissions.

EPA has not considered the visual amenity of the stacks. This is a consideration for the relevant planning authority. For the EastLink project, this is the Southern and Eastern Integrated Transport Authority (SEITA).

EPA has been advised that additional consultation on visual impacts of the stacks was held between the City of Manningham, the City of Whitehorse and the applicant. EPA is advised that no further issues were identified through this process that impacted on the works approval assessment.

The applicant indicated in their application that the height of the stacks could be increased. Additional information provided by the applicant indicated the height increase would be no more than five metres. EPA is satisfied the current stack height is adequate.

Noise

Issue of concern: Night-time noise impacts are not adequately addressed by VicRoads performance guidelines.

The works approval submitted was for the tunnel ventilation system.

The noise emissions from the ventilation system form part of a commercial premises. Noise impacts from commercial premises are assessed by the State environment protection policy for the control of

noise from commerce, industry and trade (SEPP N-1). SEPP N-1 has a noise standard for night-time noise.

EPA is satisfied the operation of the proposed ventilation system will meet the noise limits of the State environment protection policy for commercial premises.

Concerns about other sources of noise are addressed through planning provisions. The responsible planning authority for the EastLink project is the Southern and Eastern Integrated Transport Authority (SEITA).

Water management

Issue of concern: Discharging surface and groundwater from the tunnels to a constructed wetland could adversely affect the wetland and potentially impact the Wollert Creek (a tributary of the Mullum Mullum Creek).

EPA has introduced a condition in the works approval that provides for surface water collected in the tunnel to be disposed to sewer under normal operating conditions.

As part of licence conditions, EPA can require that all surface water be disposed to sewer under normal operating conditions.

The works approval application provided for groundwater to go to sewer unless the water quality indicated it was suitable for disposal to the wetland. As part of licence conditions, EPA can require all groundwater be disposed to sewer.

EPA will consider allowing surface and groundwater collected in the tunnels to be discharged via a wetland to Wollert Creek, provided it can be demonstrated there is no adverse impact on the

beneficial use of the Creek. If this can be demonstrated to the satisfaction of EPA, the licence can be amended to allow this to occur.

An additional requirement of the works approval is to prepare a groundwater and surface water monitoring program to the satisfaction of EPA. EPA will involve Melbourne Water in the review of the monitoring program.

Works approval process

Issue of concern: A construction-phase environmental improvement plan should have been submitted with the works approval application.

The EPA works approval applies to the installation of industrial plant associated with the tunnel ventilation system and water management system. It does not apply to other parts of the EastLink works.

Thiess John Holland, the constructor of EastLink, has a detailed environmental management system for the project, and an environmental management plan for the construction phase.

EPA has an ongoing role in ensuring construction is undertaken in accordance with the *Environment Protection Act 1970*, State environment protection policies and published EPA guidelines.