



Department of Health & Human Services

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Our Ref: WA1002695

Your Ref: 524428

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Dear Mr Cooke

Works Approval Application WA1002695 Westgate Tunnel Ventilation Systems Department of Economic Development, Jobs, Transport and Resources, YARRAVILLE VIC 3013

Thank you for referring this Works Approval Application to the Department of Health and Human Services (the Department) on the 1 June 2017 for consideration. This response reflects an extension of time granted by EPA Victoria to 3 July 2017.

Under *Section 19B* of the *Environment Protection Act 1970*, the Department is a statutory referral agency for EPA Works Approvals. The Department may provide comments, recommendations or an objection if the proposed works are likely to endanger public health.

In December 2016, in response to the Independent Inquiry into the EPA, some environmental health functions associated with the assessment of public health risks for pollution and waste were transferred from the Department to the EPA. In line with this change, EPA provided the Department with the EPA Environmental Public Health Risk Assessment of 27 June 2017 also for consideration.

In summary, the West Gate Tunnel Project (WGTP) consists of :

- An Environmental Effects Statement currently on public exhibition for the WGTP.
- This Works Approval application is for the construction and installation of tunnel ventilation systems for two proposed tunnels going in opposite directions – each three traffic lanes wide.
- The inbound tunnel is likely to be 2.8 km long and has the northern ventilation structure, 60 metres east of Whitehall Street, 250 metres north of Somerville Road, Footscray.
- The outbound tunnel is likely to be 4 km long and has the southern ventilation structure, 150 metres west of the Newport freight railway line.
- Both ventilation structures will be located close to the tunnel exit portals for each tunnel.

In consideration of the Works Approval application, including the EPA Environmental Public Health Risk Assessment, the Department provides the following comments and recommendations:

Noise:

- The design of the tunnel ventilation system will achieve compliance with the noise State Environment Protection Policy (SEPP) N-1.
- The modelling undertaken suggests that all sensitive receptors are predicted to be below the night and day time noise limits. In addition, ongoing noise monitoring from tunnel ventilation systems will be required by the EPA once the tunnels are operational to verify compliance with the noise SEPP N-1.

Water:

- A sewer realignment will occur on the east side of the West Gate tunnel and tunnel spoil generated will be removed to a temporary handling facility before being transported for disposal. The EPA must be satisfied that these works will be undertaken in accordance with the relevant SEPP's and guidelines.

Air Quality (tunnel ventilation system):

- The Tunnel Ventilation System Air Quality Impact Assessment Report (Golder Associates – May 2017) includes predicted pollutant concentrations from tunnel ventilation structures.
- Air modelling demonstrated that air emissions from the tunnel ventilation structures (ie NO₂, CO, VOCs and PAHs) complied with all applicable design criteria in the SEPP (Air Quality Management or AQM), except for PM₁₀ as a 1 hour average.
- For PM₁₀ (1 hour average design criteria of 80 µg/m³) and, in some instances PM_{2.5} (1 hour average design criteria of 50 µg/m³) there were exceedances. These exceedances have been associated with local sources such as vehicles (roadside) and industrial emissions contributing to relatively high background levels.
- Section 16, SEPP(AQM) refers to risk assessment as a method of gaining better understanding of the impacts of emissions from an activity on beneficial uses of the air environment, including public health. EnRisks consultancy undertook the health risk assessment for the WGTP.

Air Quality (assessment of residual risk from fine particles):

- To allow for appropriate consideration of exceedances of fine particles and the assessment of potential impact on community health, EnRisks prepared the WGTP: Technical Report J Human Health Impact Assessment (May 2017).
- Overall, EnRisks concluded that the human health impact from nitrogen dioxide, carbon monoxide, volatile organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAHs) from tunnel ventilation outlets were acceptable and with the implementation of Environmental Performance Requirements the residual risk to be low. For VOCs and PAHs there would be no acute or chronic health risk issues in the local community from the operation of the tunnel ventilation structures.
- The EnRisks assessment of potential residual risk of the combined impacts from tunnel ventilation outlets plus the proposed changes to surface road-related emissions for PM_{2.5} concluded that the risk of all-cause mortality; cardiovascular hospitalisations in older adults; and respiratory hospitalisations in older adults for Years 2022 (normal operations) and 2031 (normal operations) to be at an acceptable (i.e. tolerable) level of risk.
- Overall the potential air impacts on health from emissions associated within the operation of the tunnels component were assessed as being below health-based guidelines and the residual risk to human health is also considered to be low.

Detailed design specification:

- The detailed design specifications for the ventilation structures are currently unavailable, however EPA confirms that detailed design information must be supplied to the Authority's satisfaction prior to commencement of works permitted by the Works Approval.

- As per the *Environment Protection (Scheduled Premises) Regulations 2007*, an EPA licence is required prior to the commencement of operation of the tunnel ventilation system.

Monitoring air quality:

- To effectively validate the air modelling undertaken as part of the Works Approval application, it is noted that a minimum of one year of air quality monitoring will occur to the satisfaction of the EPA before operation of the tunnel, and for five years monitoring during operation of the tunnel.
- The Department recommends that EPA considers reserving the right to review and amend the air monitoring program beyond five years if deemed necessary to continue monitoring for environmental or public health impacts. Air monitoring includes in-tunnel monitoring; in stack or in ventilation structure monitoring as well as ambient air quality monitoring.
- In-tunnel air quality and ventilation structure emissions will be monitored during operations to demonstrate compliance with licence conditions and relevant SEPP's and guidelines.
- Results will be made publicly available for ambient air quality monitoring program, including in-tunnel air quality results (published quarterly).
- Post-project completion, ambient air quality monitoring systems will be located adjacent to each ventilation structure to assess potential impacts of emissions on nearby sensitive receptors.

Modelling Scenarios and assumptions:

- The worst-case (congested) scenario, Scenario C is for maximum traffic capacity and conservatively assumes that all three lanes are operating at full capacity (i.e. 24 hours a day, seven days a week). This Scenario is not considered in much detail in the Tunnel Ventilation System Air Quality Impact Assessment Report (Golder Associates – May 2017).
- The Department recommends that EPA be satisfied that in tunnel emissions and emissions from the ventilation structures are protective of human health in the event of a worst-case congested situation such as Scenario C.
- In addition, the tunnel air flow and ventilation extraction requirements should also accommodate issues including (but not limited to) power outage resulting in failure of the ventilation extraction system or emergencies such as an in tunnel accident or fire.

Based on the information provided by EPA, the Department does not object to the proposed works approval on the grounds that public health is likely to be endangered. The Department however recommends that EPA is assured that the tunnel ventilation system is designed, constructed and operated according to the objectives and principles of the EP Act and relevant SEPPs and environmental guidelines.

If there are any queries regarding this matter, please contact Sandra Falconer, Manager Environmental Health Policy & Risk Management Program on 9096 5105.

Yours sincerely



Dr Mihaela Ivan
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Health Protection Branch

3/7/2017

