

CLEM7 in-tunnel air quality

Monthly trend report – February 2019

The table below sets out the in-tunnel air quality criteria for the Clem 7 tunnel as set out in the Coordinator General's Report.

- For the month of February 2019 no notable trends have emerged.

Table 1: In-tunnel air quality criteria

Parameter	Criteria
Carbon monoxide (CO)	70 ppm generally 90 ppm in peak traffic congestion
Nitrogen dioxide (NO ₂)	1 ppm (average)
Visibility coefficient (K)	0.005 m ⁻¹ for free flowing traffic (greater than 50km/hr) 0.007 m ⁻¹ otherwise

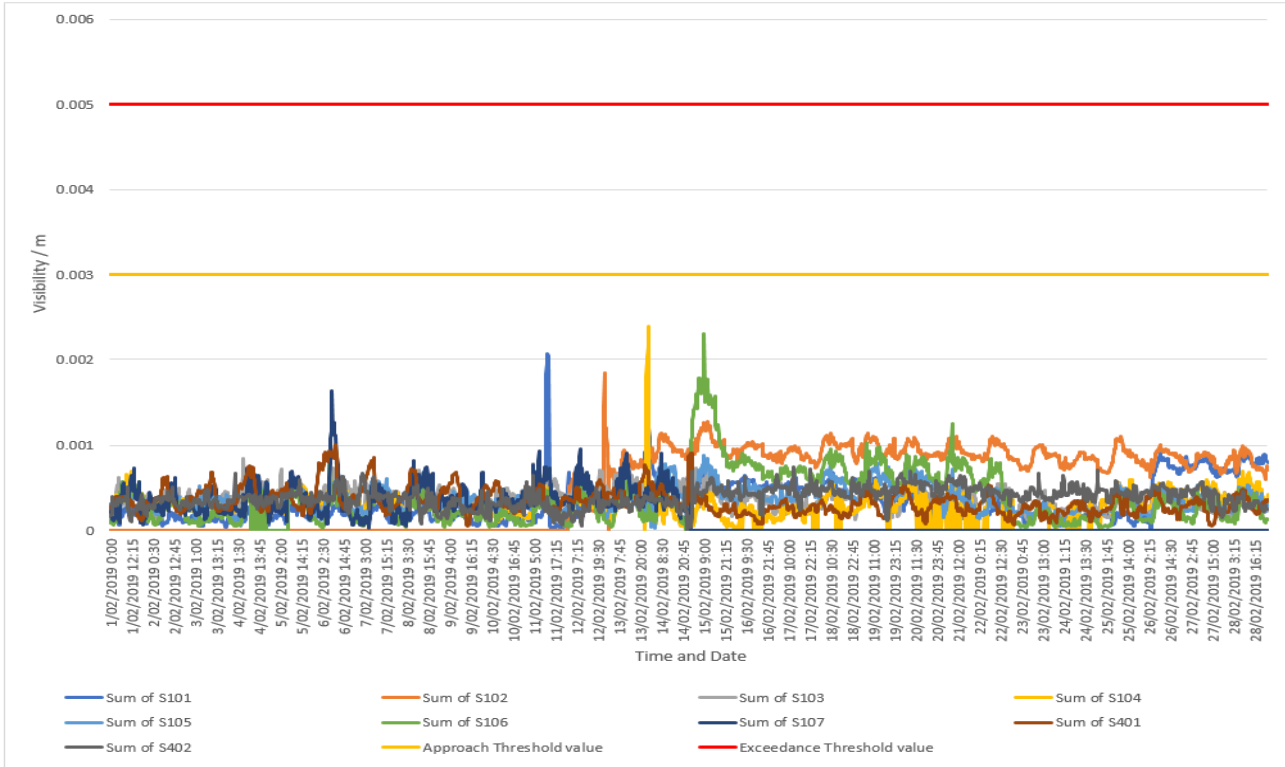
Notes:

1. Monitoring and measuring protocols for each criteria as set out in the PIARC guidelines, as current December 2009.
2. Peak traffic congestion occurs when traffic flows are less than 10 km/h.
3. Visibility coefficient (K-value) may fluctuate with peak conditions.

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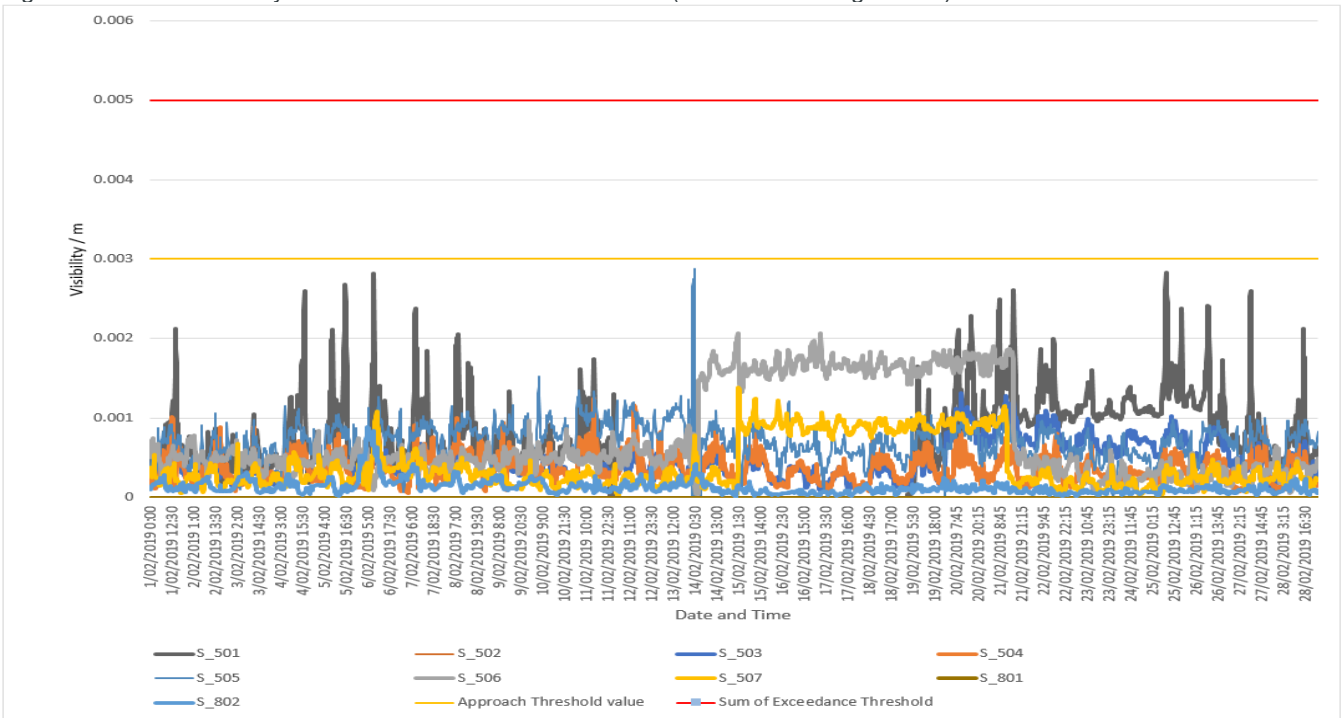
Visibility

Figure 1: In-tunnel visibility extinction coefficient – Northbound (15 minute averaged data)



S0102: Data flat lined during early February. Sensor investigated and corrected during the February maintenance closure.
 S0104: Spike mid-February followed by erratic readings investigated during the February maintenance closure.
 S0107: Erratic and flat line readings from mid-February. Data invalidated from mid-February.

Figure 2: In-tunnel visibility extinction coefficient – Southbound (15 minute averaged data)

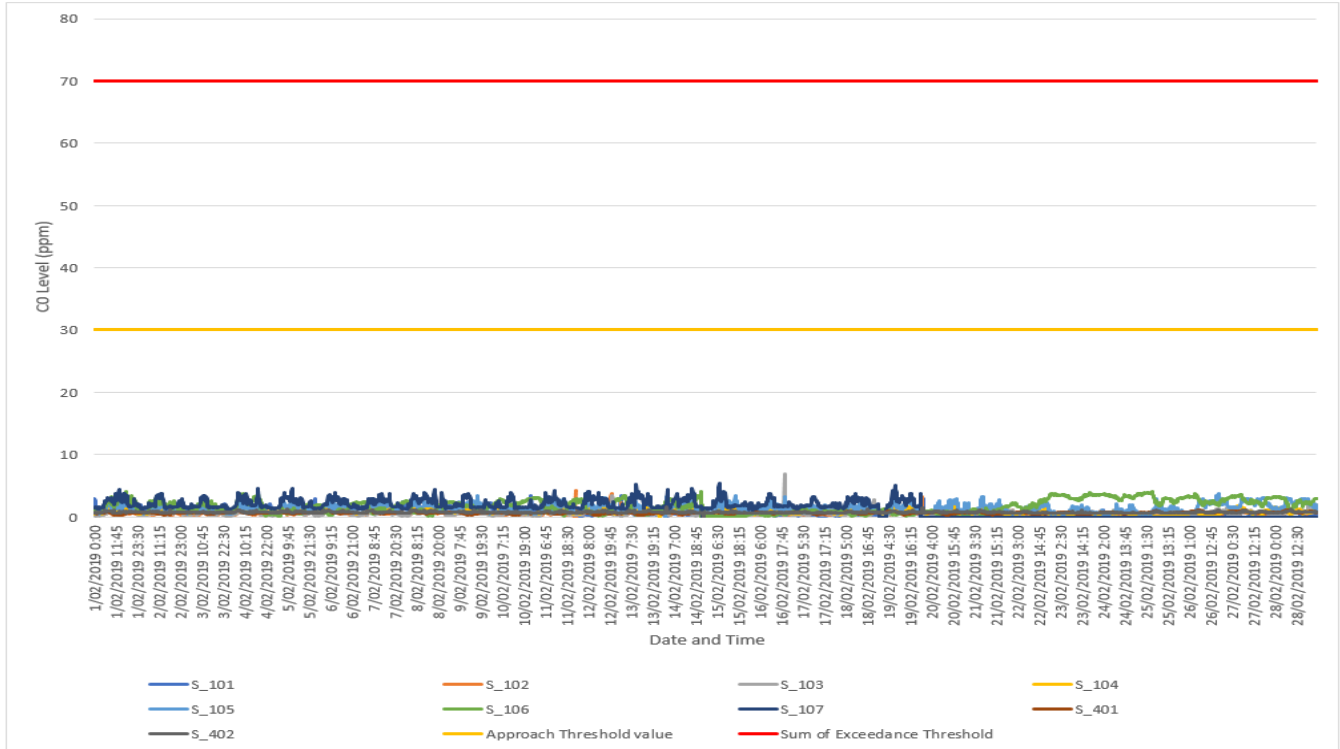


S0502: Maintenance occurred during February closure, further issues. No data available.
 S0801: No data available. Unit removed for spectrometer repairs at manufacturer.
 S0501: Spikes appear to be on-trend but unusually high, followed by flat line mid-February. Investigated and calibrated during February 2019 Closure
 S0506: Displayed high baseline mid-February, however returned to normal levels.

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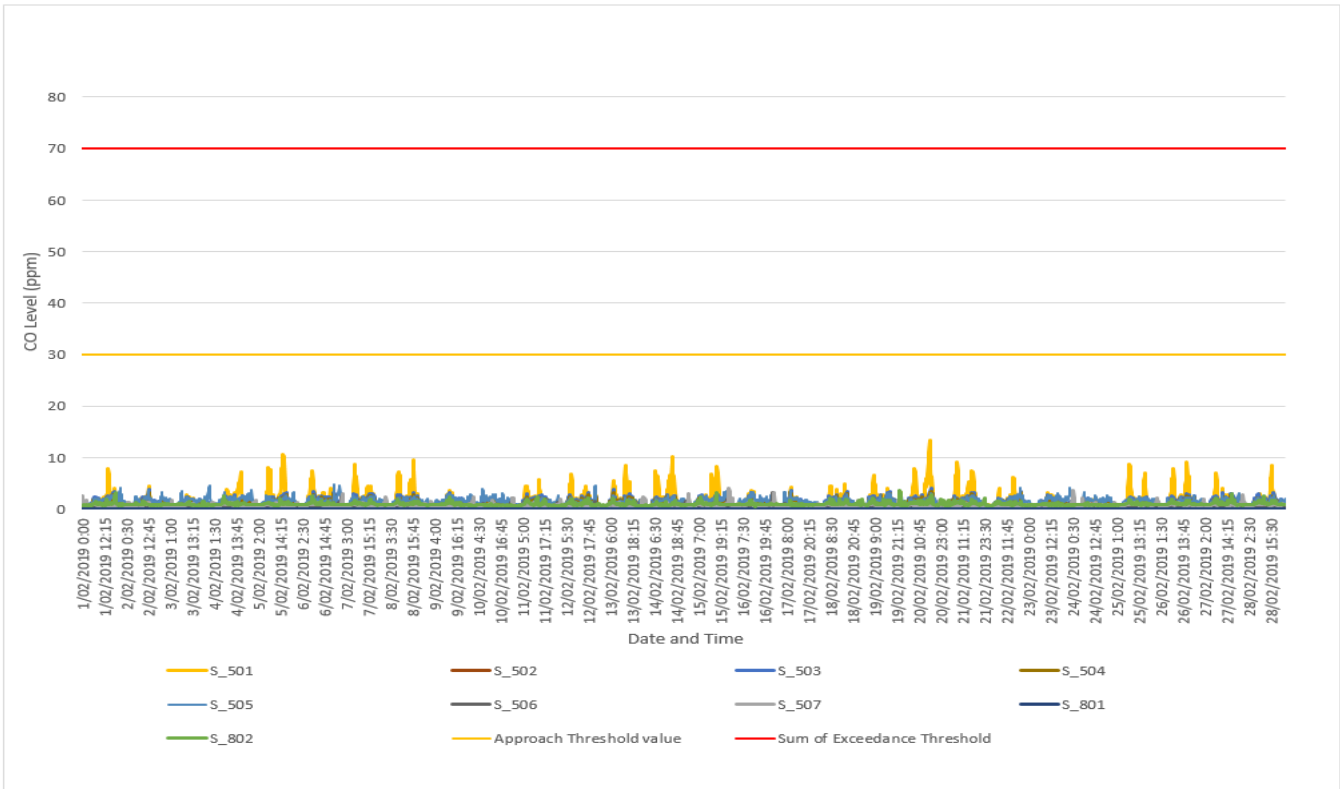
Carbon monoxide

Figure 3: In-tunnel Carbon Monoxide (CO) Concentrations - Northbound (15 minute averaged data)



S0107: Sensor Displaying an Erratic Reading late February with flatline reading. To be investigated during April 2019 Shutdown.

Figure 4: In-tunnel Carbon Monoxide (CO) Concentrations - Southbound (15 minute averaged data)

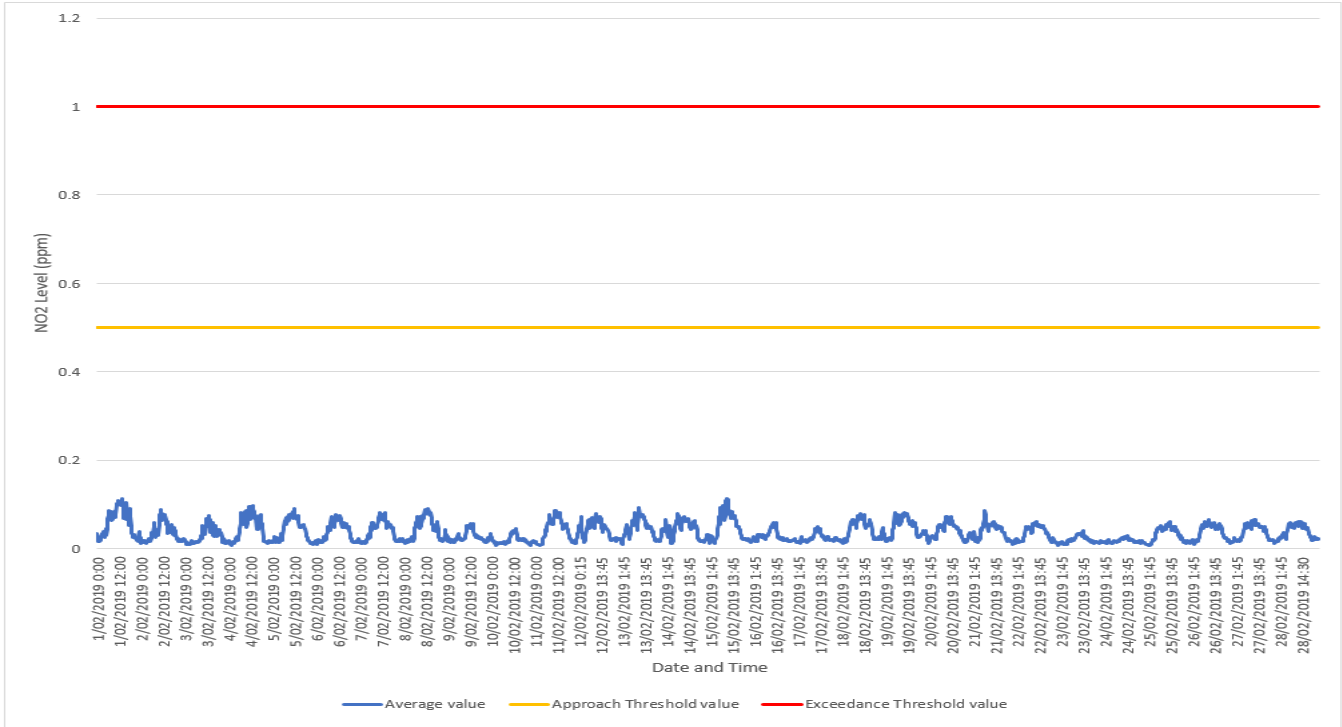


S0501: Spikes appear to be on-trend but unusually high. Sensor investigated and calibrated during February 2019 Closure.
 S0502: Sensor Not Powered due to ongoing fault with flash card. Sensor to be sent to manufacturer for refurbishment.
 S0801: Sensor Not Powered due to ongoing fault. Sensor sent to manufacturer for refurbishment

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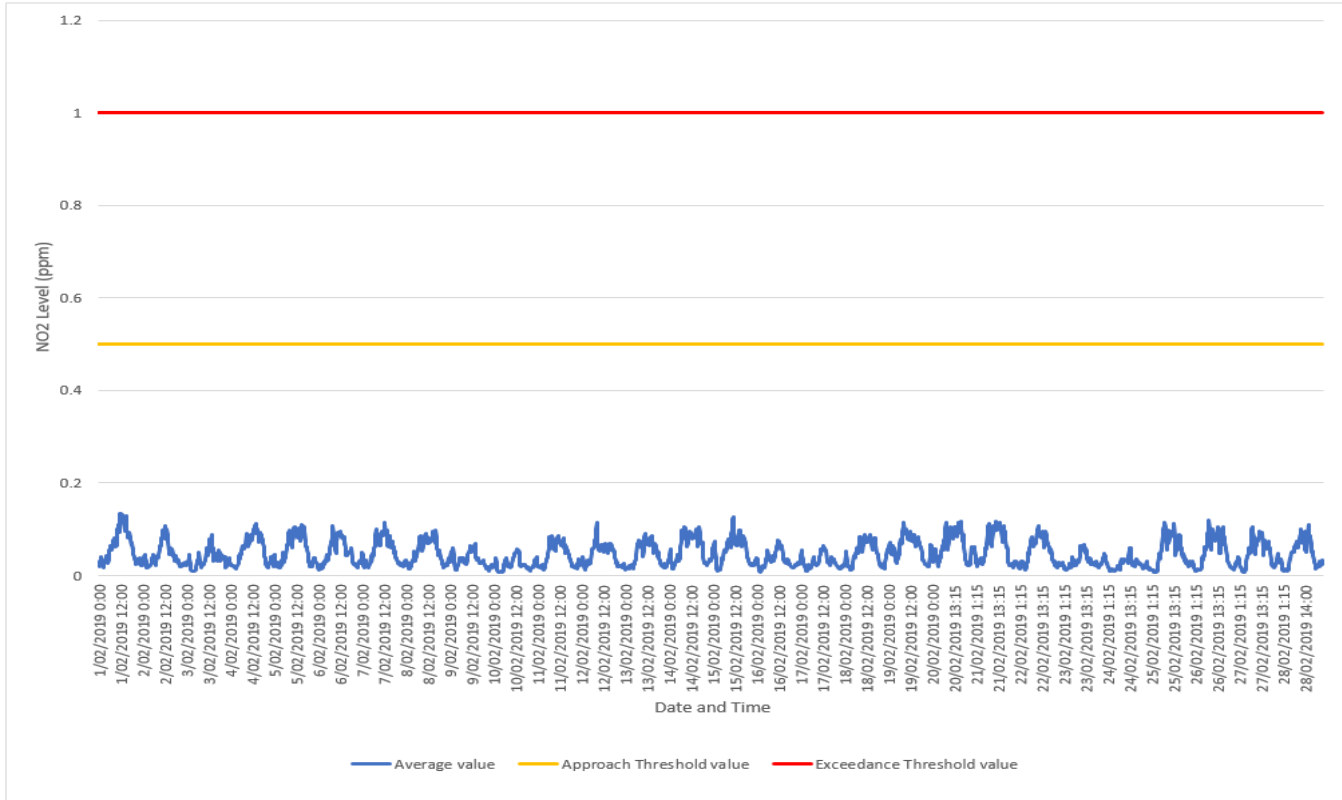
Nitrogen dioxide

Figure 5: In-tunnel Nitrogen Dioxide (NO₂) Concentrations - Northbound (15 minute averaged data)



S102: Sensor Displaying an Erratic / Flatline reading during early February. To be Investigated and refurbished during April 2019 Closure
 S107: Sensor displaying an Erratic / Flatline reading during late February. To be investigated and refurbished during April 2019 Closure

Figure 6: In-tunnel Nitrogen Dioxide (NO₂) Concentrations - Southbound (15 minute averaged data)



S0501: Spikes appear to be on-trend but unusually high. Sensor to be investigated during April 2019 Closure
 S0502: Sensor Not Powered due to ongoing fault. Sensor to be sent to manufacturer for repairs to flash card. No going to be reinstalled during April 2019 closure.
 S0801: Sensor Not Powered due to ongoing spectrometer fault. To be reinstalled during April 2019 closure.