Air Quality Bulletin

Northern Queensland

June 2025

DELIVERING FOR QUEENSLAND

Queensland Government

Prepared by: Air Quality Monitoring
Department of the Environment, Tourism
Science and Innovation.

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November 2025

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Introduction

Air quality monitoring gathers information on the quality of the air environment. The objectives of the monitoring are to check compliance with ambient air quality guidelines, identify long-term trends in air quality, investigate local air quality concerns, and assess the effectiveness of air quality management strategies.

During June 2025, air quality monitoring was carried out by the Queensland Government at one site in Townsville, one site in Ayr, one site in Cairns and one site in Mount Isa. In addition, monitoring was also conducted by Port of Townsville Limited at Townsville Coast Guard, and Lennon Drive and Environment Park in South Townsville.

Air pollutants monitored included nitrogen dioxide, sulfur dioxide, visibility-reducing particles, $PM_{2.5}$ and PM_{10} (particles less than 2.5 and 10µm in diameter, respectively), TSP (total suspended particulate matter - particles less than 100µm approximately in diameter) and dustfall (particles large enough to settle from the air).

Port of Townsville Limited assumed sole responsibility for air monitoring at the Coast Guard site in August 2023. Data for one day in six TSP and dustfall (and associated metals in TSP and dustfall) for the Coast Guard site can now be accessed through the online Townsville Port Operations air quality dashboards at *https://www.townsville-port.com.au/environment/monitoring/air-monitoring/air-quality-dashboards* .

Reporting protocol

Data presented in this bulletin are based on clock hours. Hourly or other averages are constrained to start and finish on a clock hour.

Air quality summary graphs

Figures 1 to 15 summarise available air quality data for sampling days at Townsville, Ayr and Cairns sites during June. Monthly average dustfall and deposited lead for Townsville sites are shown in figures 16 and 17. Figures 18 to 24 summarise air quality data for sampling days at the Mount Isa site during June. The maximum recorded level for each day is used to show the day-to-day variation in air quality.

Air quality summary tables

Tables 6 to 25 present monthly summaries of air quality data for the preceding 12 months. These tables show the month-to-month variation in air quality. A monthly entry is given when at least three-fifths of the maximum possible number of observations during the month are available. When data is not available for the entire month, due to equipment malfunction, this is indicated by the abbreviation ‘n.d.’ (no data). A dash is inserted when less than three-fifths of data are available. Where no data is recorded, the reason for the low data availability is summarised in Table 26 at the end of this bulletin.

Table 1. Air pollutants monitored at northern Queensland ambient air quality monitoring sites.

	Nitrogen dioxide	Sulfur dioxide	PM_{10}	$PM_{2.5}$	Visibility-reducing particles	TSP	Lead	Copper	Zinc	Nickel	Arsenic	Cadmium	Dustfall	Dustfall lead
Townsville														
North Ward	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Coast Guard (industry)			✓			✓								
Lennon Drive (industry)			✓			✓								
Environment Park (industry)			✓											
Ayr														
Ayr			✓	✓										
Cairns														
Woree			✓	✓										
Mount Isa														
The Gap		✓	✓	✓			✓				✓	✓		

Guidelines

Wherever possible, air quality measurements are compared against Australian air quality standards. In their absence relevant international standards are used for comparison.

Measured concentrations of nitrogen dioxide, sulfur dioxide, visibility-reducing particles, $PM_{2.5}$, PM_{10}, TSP, lead, nickel, cadmium and arsenic are compared to the air quality objectives contained in the Queensland Environmental Protection (Air) Policy 2019 and the Environmental Protection (Air) Amendment Policy 2024 (in force from September 2024 or January 2025) (EPP (Air)) to assess whether pollutant levels could harm health and wellbeing. Limit values for TSP and dustfall specified in the Department of the Environment, Tourism. Science and Innovation guideline document Application requirements for activities with impacts to air (Air Impacts Guideline) are used to assess dust nuisance effects.

Sulfur dioxide, PM_{10} and arsenic levels in Mount Isa are also compared against the air quality limits specified in the Mount Isa Mines Limited Environmental Authority EPML00977513.

Compliance with air quality guidelines - Townsville and Ayr

During June, measured pollutant levels did not exceed the relevant air quality guideline at Queensland Government and industry air monitoring sites in Townsville and Ayr.

Table 2. Number of occasions during June when measured levels exceeded EPP (Air) objectives for nitrogen dioxide, sulfur dioxide, visibility-reducing particles, $PM_{2.5}$, PM_{10}, TSP, lead, nickel, arsenic and cadmium; Ontario Ministry of Environment air quality criteria for copper and zinc; and DETSI nuisance dust limits for TSP and dustfall at Queensland Government and industry air monitoring sites in Townsville and Ayr.

Pollutant	Averaging Period	Exceeedences
Nitrogen dioxide	*EPP (Air)*	
	Annual	0
	1-hour	0
Sulfur dioxide	*EPP (Air)*	
	Annual	0
	24-hour	0
	1-hour	0
Visibility-reducing particles (refers to protecting aesthetic environment, not health and wellbeing).	*EPP (Air)*	
	1-hour	0
$PM_{2.5}$	*EPP (Air)*	
	Annual	0
	24-hour	0
PM_{10}	*EPP (Air)*	
	Annual	0
	24-hour	0
TSP (24-hour period refers to dust nuisance, not health and wellbeing)	*EPP (Air)*	
	Annual	0
	DETSI limit	
	24-hour	0
TSP Lead	*EPP (Air)*	
	Annual	0
TSP Copper	*Ontario*	
	24-hour	0
TSP Zinc	*Ontario*	
	24-hour	0
TSP Nickel	*EPP (Air)*	
	Annual	0
TSP Arsenic	*EPP (Air)*	
	Annual	0
TSP Cadmium	*EPP (Air)*	
	Annual	0
Dustfall (30-day period refers to dust nuisance, not health and wellbeing)	*DETSI limit*	
	30-day	0

Compliance with air quality guidelines - Cairns

During June, measured pollutant levels did not exceed the relevant air quality guideline at the Queensland Government air monitoring site in Cairns.

Table 3. Number of occasions during June when measured levels exceeded EPP (Air) objectives for $PM_{2.5}$ and PM_{10} in Cairns.

Pollutant	Averaging Period	Exceeedences
$PM_{2.5}$	*EPP (Air)*	
	Annual	0
	24-hour	0
PM_{10}	*EPP (Air)*	
	Annual	0
	24-hour	0

Compliance with air quality guidelines - Mount Isa

During June, measured pollutant levels, with the exception of sulfur dioxide, did not exceed the relevant air quality guideline at the Queensland Government air monitoring site in Mount Isa.

Sulfur dioxide levels at The Gap monitoring site exceeded the EPP (Air) 1-hour objective for a two hour period on 1 June. The EPP (Air) 24-hour objective was also exceeded on 1 June. All exceedances were due to industry emissions.

Table 4. Number of occasions during June when measured levels exceeded EPP (Air) objectives for sulfur dioxide, $PM_{2.5}$, PM_{10}, lead, arsenic and cadmium at the Queensland Government air monitoring site in Mount Isa.

Pollutant	Averaging Period	Exceeedences
Sulfur dioxide	*EPP (Air)*	
	Annual	0
	24-hour	1
	1-hour	2
$PM_{2.5}$	*EPP (Air)*	
	Annual	0
	24-hour	0
PM_{10}	*EPP (Air)*	
	Annual	0
	24-hour	0
TSP Lead	*EPP (Air)*	
	Annual	0
PM_{10} Arsenic	*EPP (Air)*	
	Annual	0
PM_{10} Cadmium	*EPP (Air)*	
	Annual	0

Compliance with smelter air quality limits

From January 2016 smelter operations in Mount Isa have been operating under an amended Environmental Authority (EA) which sets alternative air quality limits for some air pollutants as part of the Copper Smelter Extension Project. Table 5 details the EA air quality limit values applying in 2025 where these differ from the EPP (Air) objectives. Compliance with the EA limits is determined on a calendar year basis.

Since January 2025, 24-hour sulfur dioxide concentrations have not exceeded the EA air quality limit value at The Gap monitoring site.

Since January 2025, 1-hour sulfur dioxide concentrations at The Gap monitoring site have not exceeded the 0.400ppm limit value and have exceeded the 0.200ppm limit value for a total of four hours.

Since January 2025, 24-hour PM_{10} concentrations at The Gap monitoring site have not exceeded 50µg/m^3 .

The average arsenic concentration at The Gap monitoring site for the 12-month period ending June 2025 was less than the EA air quality limit value.

Table 5. Environmental Authority (EA) air quality limits applying to smelter operations in Mount Isa.

Air Pollutant	Averaging period	Limit value	Assessment criterion[(a)]	Period when limit value applies
Sulfur dioxide	24-hour	230µg/m^3 (=0.080ppm)	<=2 days	1 Jan to 31 Dec 2025
	1-hour	570µg/m^3 (=0.200ppm)	<=110 hours	
	1-hour	1140µg/m^3 (=0.400ppm)	<=22 hours	
PM_{10}	24-hour	50µg/m^3	<=5 days	1 Jan to 31 Dec 2025
Arsenic	Annual	0.014µg/m^3	Does not exceed	1 Jan to 31 Dec 2025
[(a)] Compliance is on an individual monitoring site basis, not across the monitoring network.				

Measured ambient concentrations - Townsville, Ayr and Cairns

Nitrogen dioxide

Figure 1. Ambient concentrations of nitrogen dioxide at North Ward site. Daily maximum 1-hour average concentrations (ppm), June 2025.

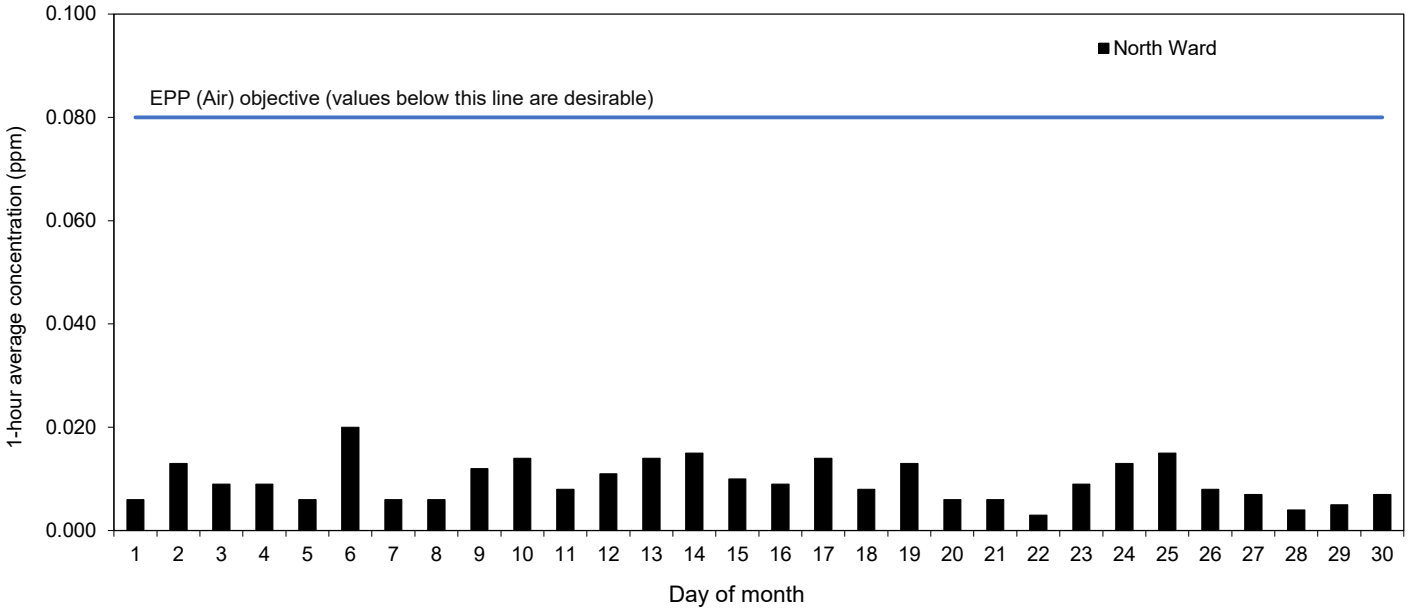


Table 6. Ambient concentrations of nitrogen dioxide. Annual average and monthly maximum 1-hour concentrations (ppm), July 2024 to June 2025.

Site		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Townsville													
North Ward													
Annual average:	0.002												
Maximum 1-hour		0.020	0.020	0.013	0.008	0.008	0.009	0.009	0.009	0.010	0.015	0.017	0.020
% I.A.		100	100	100	79	99	100	99	100	100	98	100	100

% I.A. indicates instrument availability. - indicates less than three-fifths of the data are available. n.d. indicates no data are available.

The EPP (AIr) air quality objectives for nitrogen dioxide are an annual average of 0.015ppm and a 1-hour average of 0.080ppm.

Sulfur dioxide

Figure 2. Ambient concentrations of sulfur dioxide at North Ward site. Daily 24-hour average concentrations (ppm), June 2025.

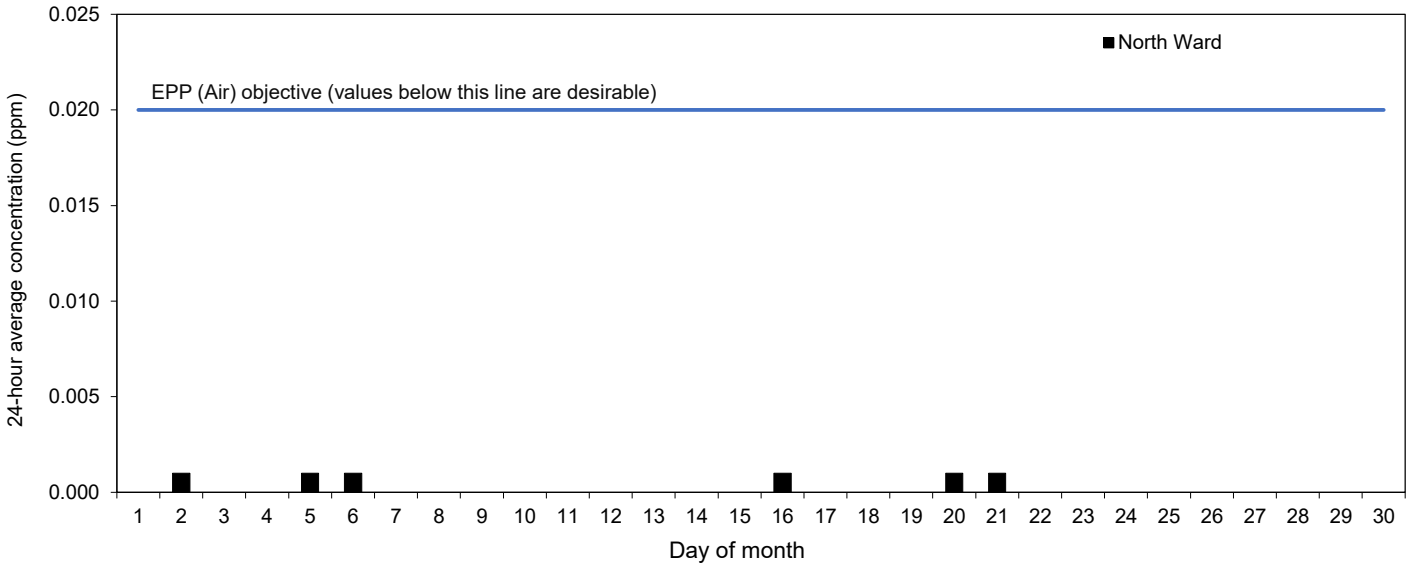


Figure 3. Ambient concentrations of sulfur dioxide at North Ward site. Daily maximum 1-hour average concentrations (ppm), June 2025.

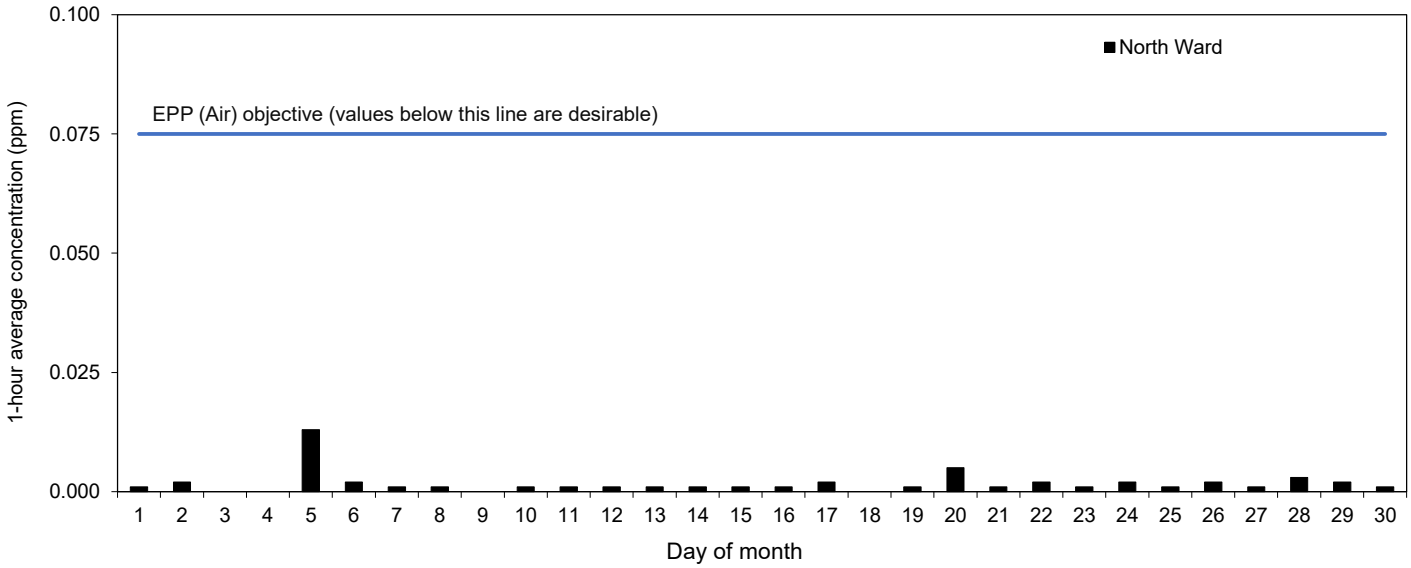


Table 7. Ambient concentrations of sulfur dioxide. Annual average and monthly maximum 24-hour and 1-hour average concentrations (ppm), July 2024 to June 2025.

Site		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Townsville													
North Ward													
Annual average:	<0.001												
Maximum 24-hour		<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.001	0.001
Maximum 1-hour		0.001	0.001	0.001	0.002	<0.001	0.001	0.001	0.005	0.003	0.003	0.002	0.013
% I.A.		100	100	100	79	99	99	99	100	99	98	100	100

% I.A. indicates instrument availability. - indicates less than three-fifths of the data are available. n.d. indicates no data are available.

The EPP (AIr) air quality objectives for sulfur dioxide are a 24-hour average of 0.020ppm and a 1-hour average of 0.075ppm.

Visibility-reducing particles

Figure 4. Ambient concentrations of visibility-reducing particle levels at North Ward site. Daily maximum 1-hour average light scattering coefficient (B_{sp}) values (Mm^{-1}), June 2025.

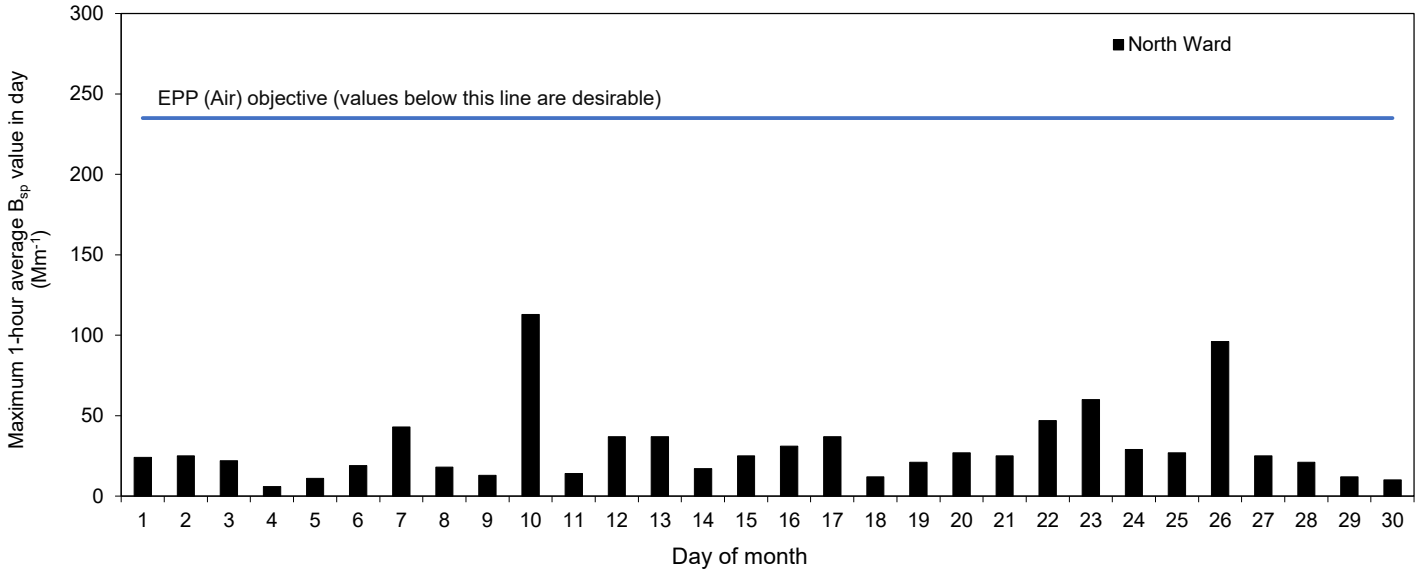


Table 8. Ambient visibility-reducing particle levels. Monthly maximum 1-hour light scattering coefficient (B_{sp}) values (Mm^{-1}), July 2024 to June 2025.

Site	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Townsville												
North Ward												
Maximum 1-hour	98	179	62	89	91	72	88	55	40	42	108	113
% I.A.	100	100	100	79	99	100	99	100	100	98	100	100

% I.A. indicates instrument availability. - indicates less than three-fifths of the data are available. n.d. indicates no data are available.

The EPP (AIr) air quality objective for visibility-reducing particles is 20km visibility. This equates to light scattering coefficient values of $235Mm^{-1}$ or less.

PM_{10}

Figure 5. Ambient concentrations of PM_{10} at Coast Guard, Environment Park and Lennon Drive sites. Daily 24-hour average concentrations ($\mu g/m^3$), June 2025.

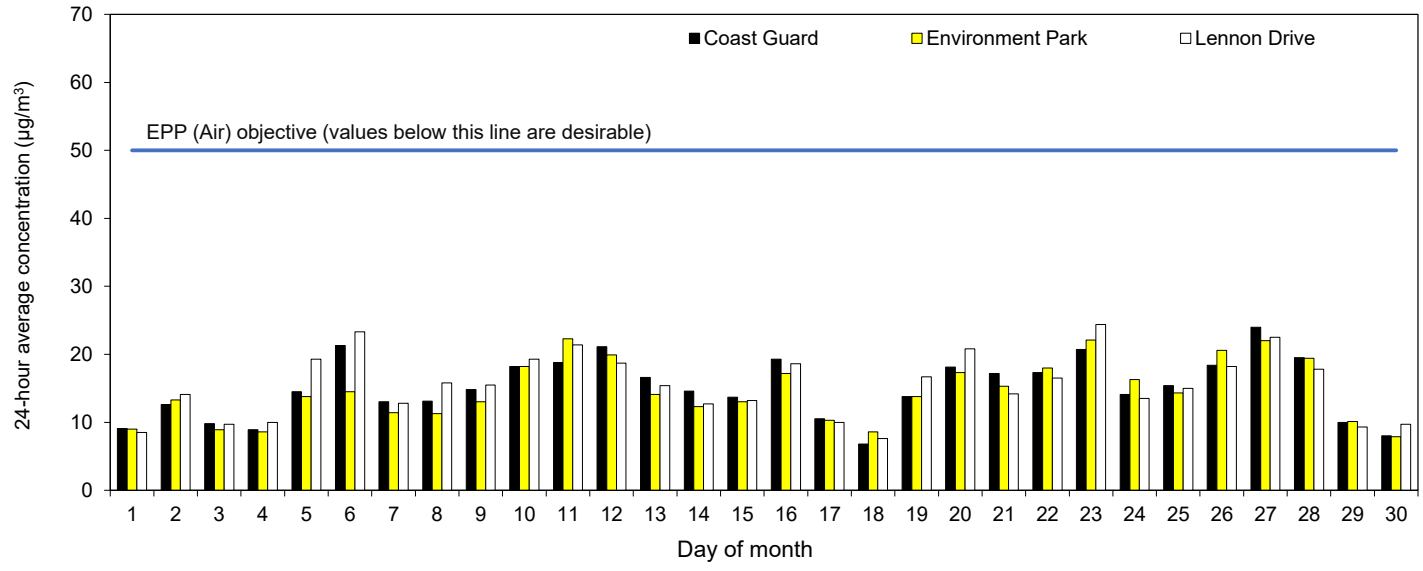


Figure 6. Ambient concentrations of PM_{10} at North Ward, Ayr and Woree sites. Daily 24-hour average concentrations (µg/m^3), June 2025.

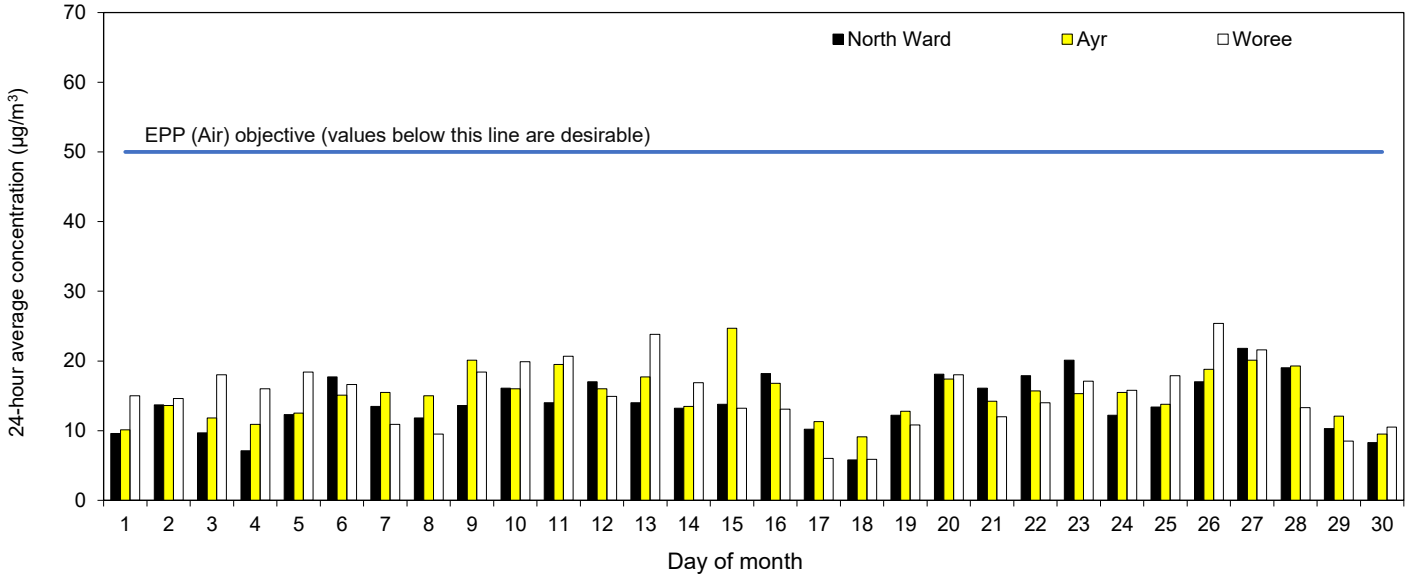


Table 9. Ambient concentrations of PM_{10}. Annual average and monthly maximum 24-hour concentrations (µg/m^3), July 2024 to June 2025.

Site		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Townsville													
Coast Guard (industry-operated site)													
Annual average:	15.0												
Maximum 24-hour		26.4	26.3	47.4	31.0	20.0	26.6	18.5	24.2	17.5	20.6	43.8	24.0
% I.A.		100	100	100	100	100	100	100	100	100	100	100	100
Environment Park (industry-operated site)													
Annual average:	15.2												
Maximum 24-hour		24.9	22.6	-	28.4	33.5	25.1	19.0	26.0	15.3	20.6	24.1	22.3
% I.A.		97	92	57	93	70	88	93	100	72	95	86	99
Lennon Drive (industry-operated site)													
Annual average:	14.9												
Maximum 24-hour		31.4	23.1	45.7	31.2	22.9	24.7	18.6	23.3	17.5	33.2	34.2	24.4
% I.A.		100	100	100	100	100	100	99	100	100	100	82	100
North Ward													
Annual average:	14.9												
Maximum 24-hour		23.7	27.0	39.9	28.6	27.2	29.4	20.0	21.8	19.0	21.7	25.1	21.8
% I.A.		100	100	100	79	99	100	99	100	100	98	100	100
Ayr													
Ayr													
Annual average:	14.1												
Maximum 24-hour		19.8	16.8	28.3	20.4	17.6	27.2	23.3	n.d.	n.d.	22.6	26.1	24.7
% I.A.		100	100	100	100	100	100	69	0	0	95	100	100
Cairns													
Woree													
Annual average:	16.5												
Maximum 24-hour		21.2	46.4	35.1	53.2	27.0	24.0	24.9	20.2	21.3	39.4	23.1	25.4
% I.A.		100	100	100	100	100	100	100	99	100	99	100	100

% I.A. indicates instrument availability. - indicates less than three-fifths of the data are available. n.d. indicates no data are available.

The EPP (AIr) air quality objectives for PM_{10} are an annual average of 25µg/m^3 and a 24-hour average of 50µg/m^3.

$PM_{2.5}$

Figure 7. Ambient concentrations of $PM_{2.5}$ at North Ward, Ayr and Woree sites. Daily 24-hour average concentrations (µg/m^3), June 2025.

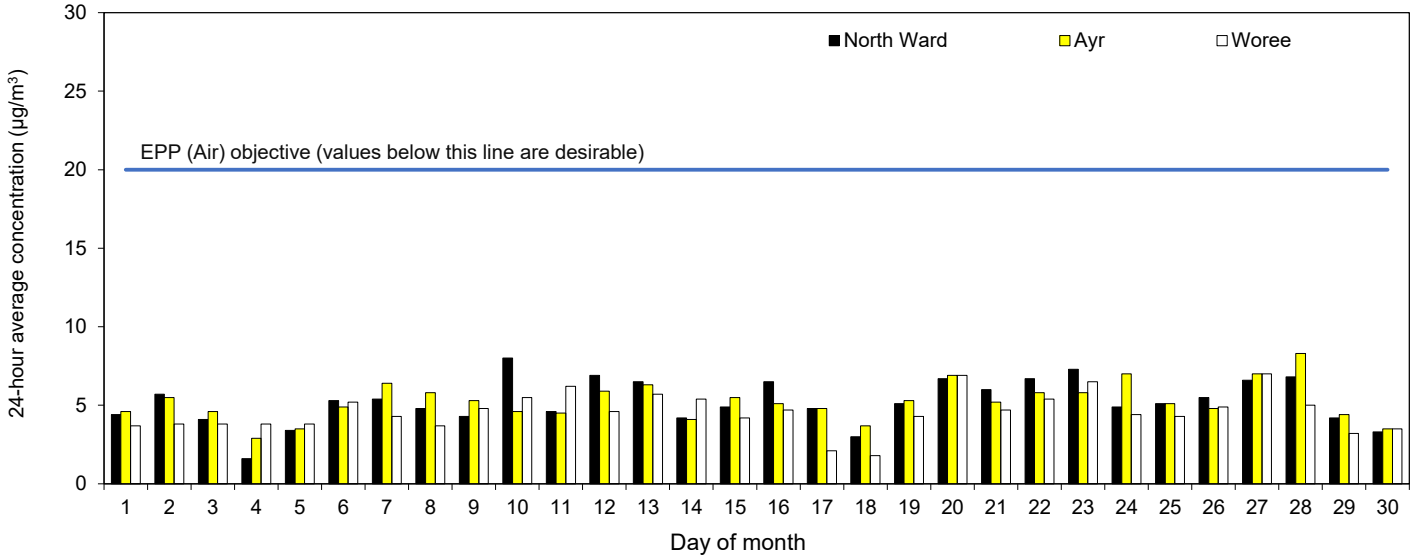


Table 10. Ambient concentrations of $PM_{2.5}$. Annual average and monthly maximum 24-hour concentrations (µg/m^3), July 2024 to June 2025.

Site		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Townsville													
North Ward													
Annual average:	5.5												
Maximum 24-hour		8.0	13.3	12.8	9.8	9.0	9.6	7.4	7.6	7.2	8.3	16.5	8.0
% I.A.		100	100	100	79	99	100	99	100	100	98	100	100
Ayr													
Ayr													
Annual average:	5.2												
Maximum 24-hour		9.8	7.3	10.7	7.8	8.7	8.4	8.5	n.d.	n.d.	10.5	7.7	8.3
% I.A.		100	100	100	100	100	100	69	0	0	95	100	100
Cairns													
Woree													
Annual average:	5.6												
Maximum 24-hour		7.9	34.2	21.4	10.6	8.2	9.7	8.1	6.8	6.0	7.2	7.1	7.0
% I.A.		100	100	100	100	100	100	100	99	100	99	100	100

% I.A. indicates instrument availability. - indicates less than three-fifths of the data are available. n.d. indicates no data are available.

The EPP (AIr) air quality objectives for $PM_{2.5}$ are an annual average of 7µg/m^3 and a 24-hour average of 20µg/m^3.

TSP

Figure 8. Ambient concentrations of TSP at Coast Guard and Lennon Drive sites. Daily 24-hour average concentrations (µg/m^3), June 2025.

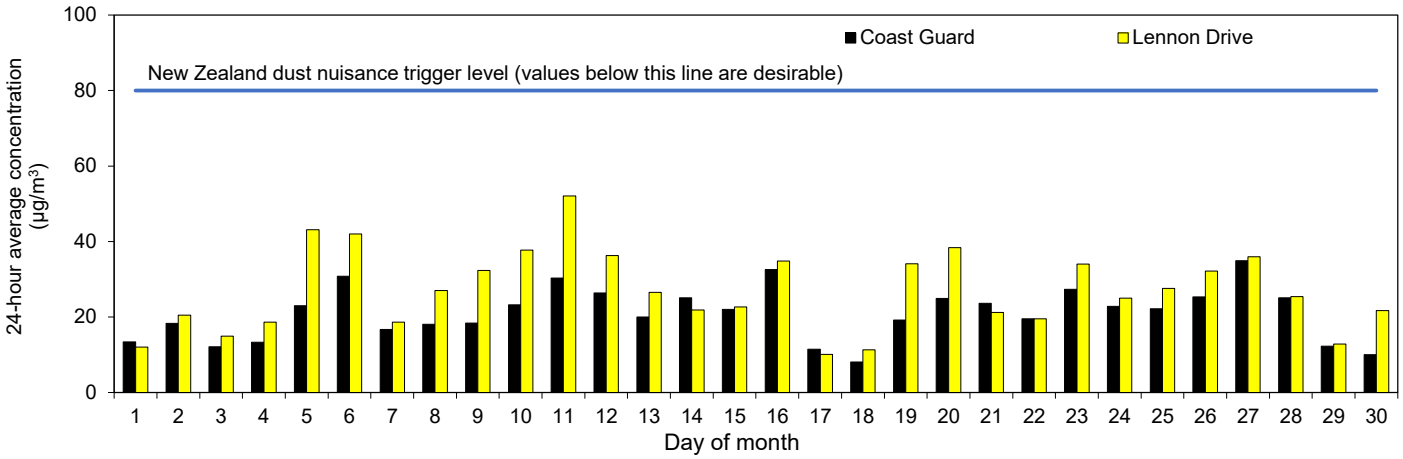


Figure 9. Ambient concentrations of TSP (one day in six monitoring) at North Ward site. Daily 24-hour average concentrations (µg/m^3), June 2025.

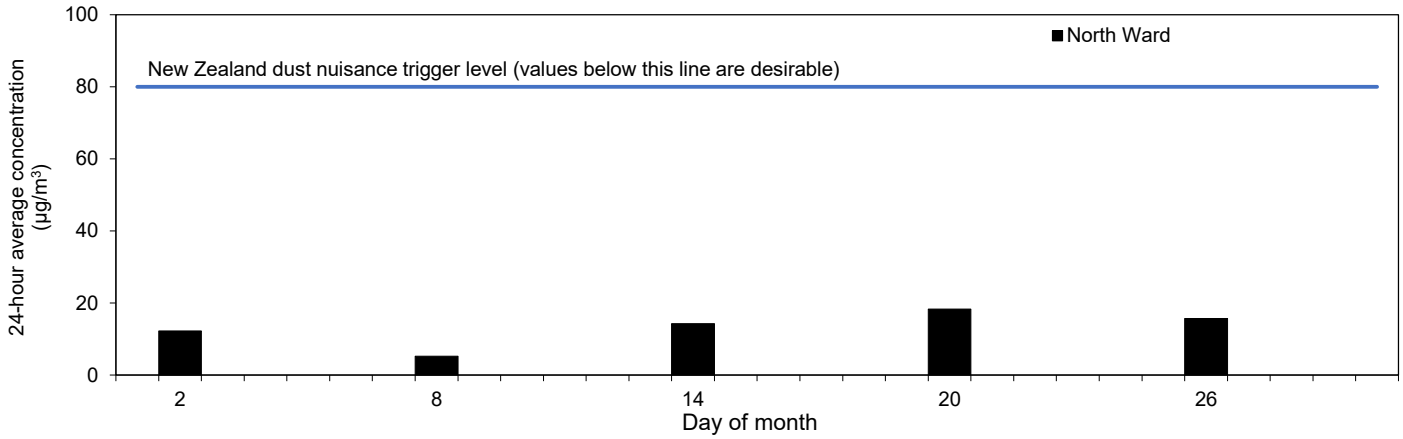


Table 11. Ambient concentrations of TSP. Annual average and monthly maximum 24-hour concentrations (µg/m^3), July 2024 to June 2025.

Site	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Townsville												
Coast Guard (industry-operated site, continuous monitoring)												
Annual average: 21.5												
Maximum 24-hour	36.2	33.2	63.3	45.1	27.2	34.4	44.8	53.7	27.8	34.1	67.8	34.9
% I.A.	97	97	97	99	73	99	98	93	100	100	100	100
Lennon Drive (industry-operated site, continuous monitoring)												
Annual average: 23.2												
Maximum 24-hour	52.4	39.9	72.2	50.0	40.2	33.2	24.7	37.8	25.6	60.6	57.2	52.1
% I.A.	95	92	94	98	92	90	96	100	100	100	82	100
North Ward (one day in six monitoring)												
Annual average: 22.5												
Maximum 24-hour	31.6	32.3	90.7	41.2	44.4	23.0	40.3	41.3	22.4	21.5	18.4	18.3
% I.A.	100	100	100	100	100	100	100	100	100	100	100	100

% I.A. indicates instrument availability. - indicates less than three-fifths of the data are available. n.d. indicates no data are available.

The EPP (AIr) air quality objective for TSP is an annual average of 90µg/m^3.

The Department of the Environment, Tourism, Science and Innovation 'Application requirements for activities with impacts to air' Guideline recommends that short-term (24-hour) TSP concentrations be compared against the trigger levels provided in the New Zealand Ministry for the Environment's *Good Practice Guide for Assessing and Managing Dust* (2016) to assess dust nuisance impacts. The New Zealand dust nuisance trigger level for areas of moderate sensitivity is a 24-hour average of 80µg/m^3.

TSP lead

Figure 10. Ambient concentrations of lead (one day in six monitoring) at North Ward site. Annual average concentrations (µg/m^3), July 2024 to June 2025.

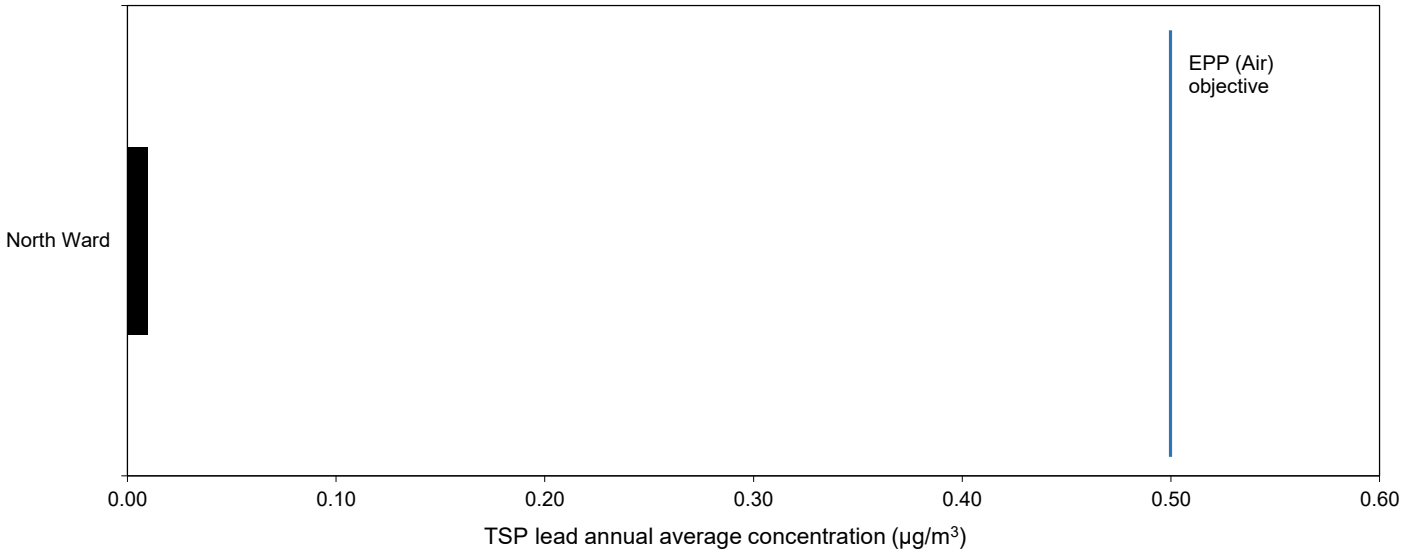


Table 12. Ambient concentrations of TSP lead. Annual average and monthly maximum 24-hour concentrations (µg/m^3) for one day in six monitoring, July 2024 to June 2025.

Site		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Townsville													
North Ward													
Annual average:	0.01												
Maximum 24-hour		0.05	0.02	0.04	0.01	0.02	<0.01	0.01	0.01	0.01	0.02	0.02	0.02
% I.A.		100	100	100	100	100	100	100	100	100	100	100	100

% I.A. indicates instrument availability. - indicates less than three-fifths of the data are available. n.d. indicates no data are available.

The EPP (AIr) air quality objective for lead is an annual average of 0.5µg/m^3.

The limit of reporting is the minimum measured lead concentration that can be determined with the sampling equipment and laboratory method used. Lead concentrations below this limit are preceded by a "<" sign in the table.

TSP copper

Figure 11. Ambient concentrations of copper (one day in six monitoring) at North Ward site. Daily 24-hour average concentrations (µg/m^3), June 2025.

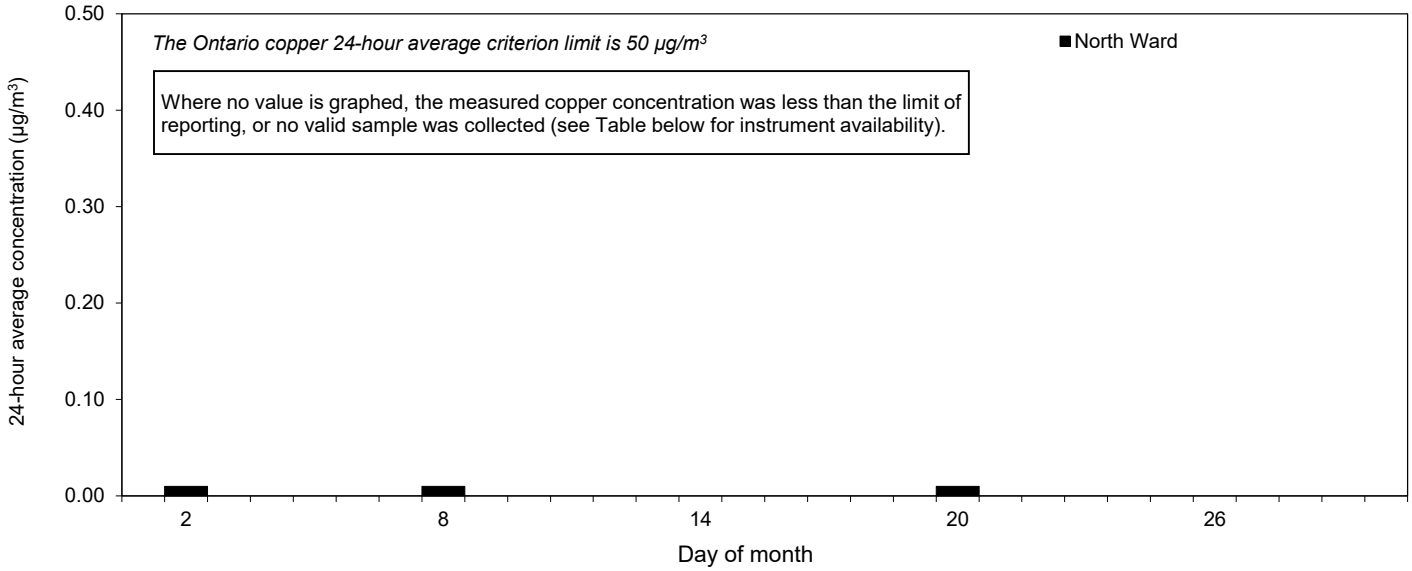


Table 13. Ambient concentrations of TSP copper. Monthly maximum 24-hour concentrations (µg/m^3) for one day in six monitoring, July 2024 to June 2025.

Site	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Townsville												
North Ward												
Maximum 24-hour	0.01	0.01	0.02	0.01	0.04	0.01	0.01	0.02	0.01	0.01	0.01	0.01
% I.A.	100	100	100	100	100	100	100	100	100	100	100	100

% I.A. indicates instrument availability. - indicates less than three-fifths of the data are available. n.d. indicates no data are available.

The Ontario Ministry of Environment ambient air quality criterion for copper is a 24-hour average of 50µg/m^3.

The limit of reporting is the minimum measured copper concentration that can be determined with the sampling equipment and laboratory method used. Copper concentrations below this limit are preceded by a "<" sign in the table.

TSP zinc

Figure 12. Ambient concentrations of zinc (one day in six monitoring) at North Ward site. Daily 24-hour average concentrations (µg/m^3), June 2025.

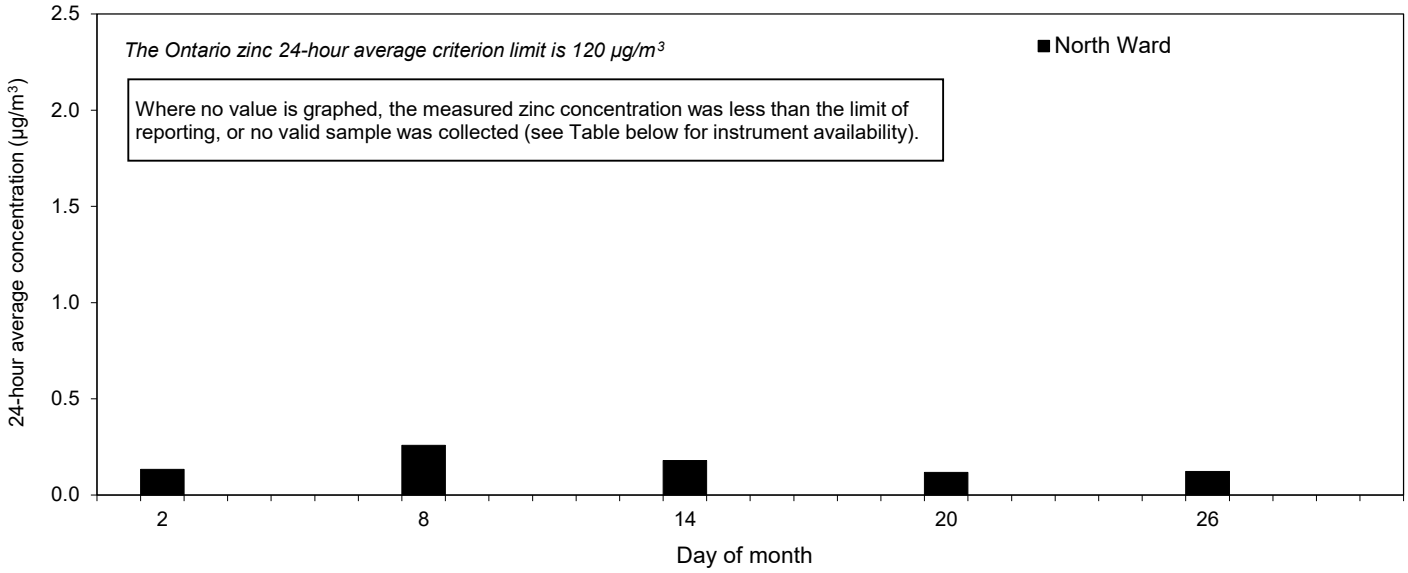


Table 14. Ambient concentrations of TSP zinc. Monthly maximum 24-hour concentrations (µg/m^3) for one day in six monitoring, July 2024 to June 2025.

Site	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Townsville												
North Ward												
Maximum 24-hour	0.09	0.17	0.21	0.06	0.07	0.04	0.12	0.09	0.12	0.12	0.28	0.26
% I.A.	100	100	100	100	100	100	100	100	100	100	100	100

% I.A. indicates instrument availability. - indicates less than three-fifths of the data are available. n.d. indicates no data are available.

The Ontario Ministry of Environment ambient air quality criterion for zinc is a 24-hour average of 120µg/m^3.

The limit of reporting is the minimum measured zinc concentration that can be determined with the sampling equipment and laboratory method used. Zinc concentrations below this limit are preceded by a "<" sign in the table.

TSP nickel

Figure 13. Ambient concentrations of nickel (one day in six monitoring) at North Ward site. Annual average concentrations (µg/m^3), July 2024 to June 2025.

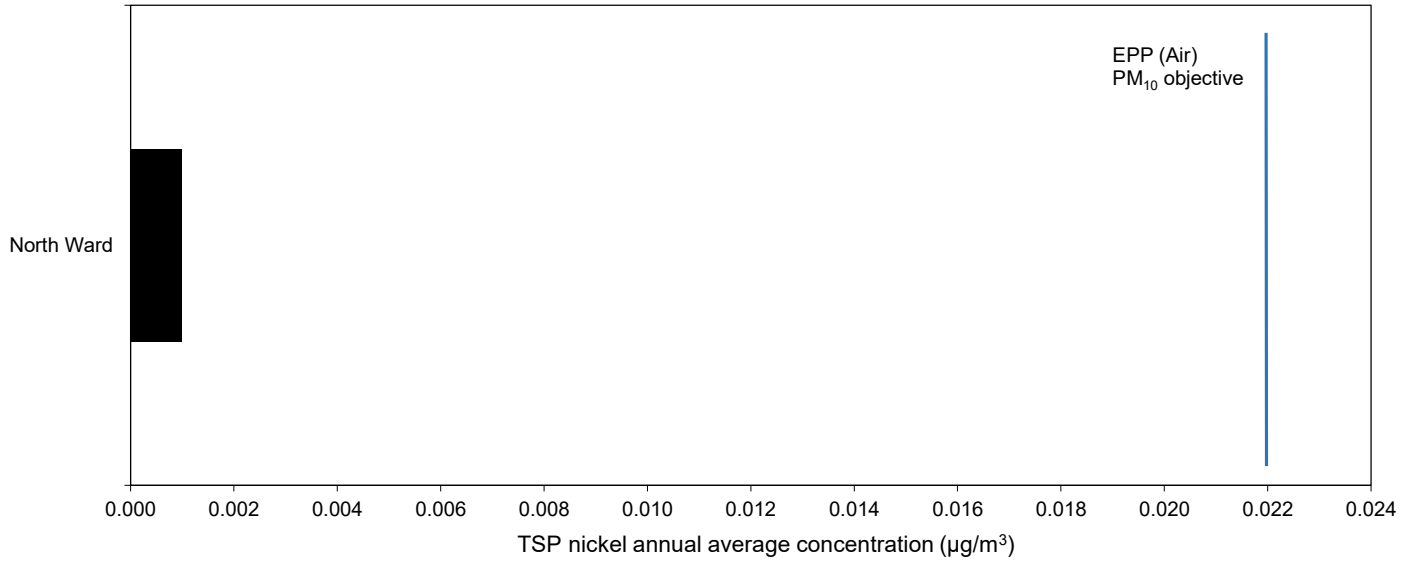


Table 15. Ambient concentrations of TSP nickel. Annual average and monthly maximum 24-hour concentrations (µg/m^3) for one day in six monitoring, July 2024 to June 2025.

Site		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Townsville													
North Ward													
Annual average:	0.001												
Maximum 24-hour		0.002	0.001	0.002	0.002	0.002	0.001	0.002	0.002	0.002	0.002	0.001	0.001
% I.A.		100	100	100	100	100	100	100	100	100	100	100	100

% I.A. indicates instrument availability. - indicates less than three-fifths of the data are available. n.d. indicates no data are available.

The EPP (AIr) air quality objective for nickel is an annual average of 0.022µg/m^3 (measured as the total metal content in PM_{10} particles).

Monitoring conducted by the Queensland Government measures the amount of nickel present in the TSP fraction. As PM_{10} is a subset of TSP, if the TSP nickel concentration is less than the EPP (Air) PM_{10} objective value, it follows that the PM_{10} nickel concentration complies with the EPP (Air) objective.

The limit of reporting is the minimum measured nickel concentration that can be determined with the sampling equipment and laboratory method used. Nickel concentrations below this limit are preceded by a "<" sign in the table.

TSP arsenic

Figure 14. Ambient concentrations of arsenic (one day in six monitoring) at North Ward site. Annual average concentrations (µg/m^3), July 2024 to June 2025.

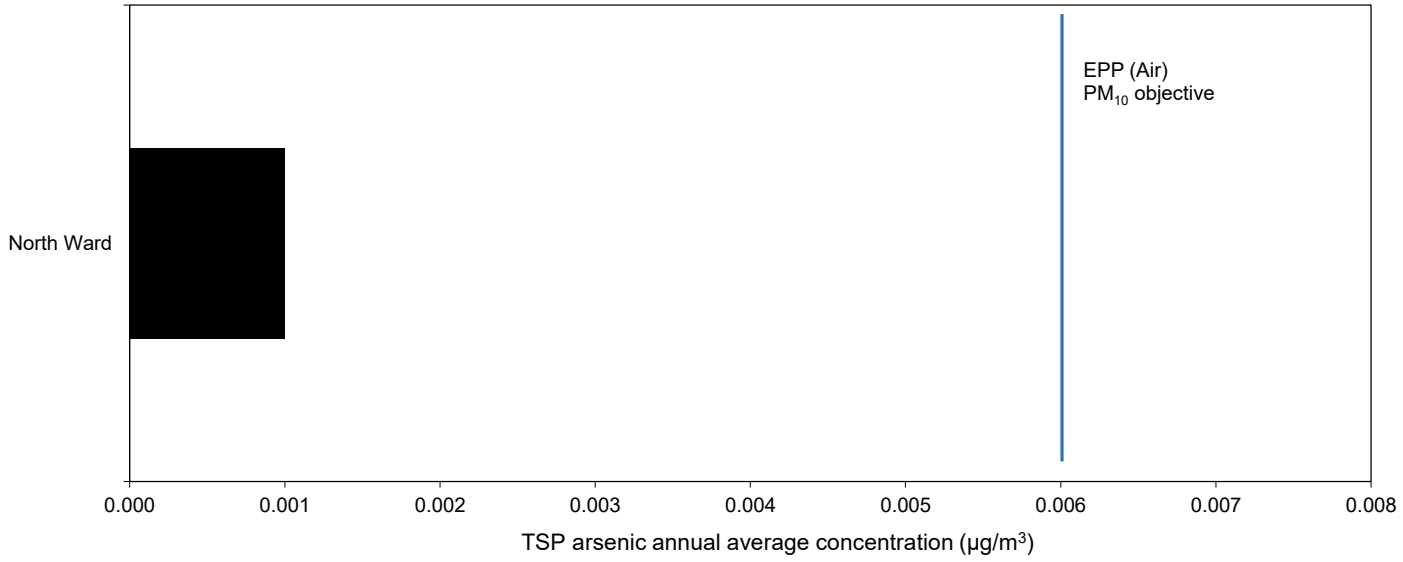


Table 16. Ambient concentrations of TSP arsenic. Annual average and monthly maximum 24-hour concentrations (µg/m^3) for one day in six monitoring, July 2024 to June 2025.

Site		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Townsville													
North Ward													
Annual average:	0.001												
Maximum 24-hour		0.001	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.001
% I.A.		100	100	100	100	100	100	100	100	100	100	100	100

% I.A. indicates instrument availability. - indicates less than three-fifths of the data are available. n.d. indicates no data are available.

The EPP (AIr) air quality objective for arsenic is an annual average of 0.006µg/m^3 (measured as the total metal content in PM_{10} particles).

Monitoring conducted by the Queensland Government measures the amount of arsenic present in the TSP fraction. As PM_{10} is a subset of TSP, if the TSP arsenic concentration is less than the EPP (Air) PM_{10} objective value, it follows that the PM_{10} arsenic concentration complies with the EPP (Air) objective.

The limit of reporting is the minimum measured arsenic concentration that can be determined with the sampling equipment and laboratory method used. Arsenic concentrations below this limit are preceded by a "<" sign in the table.

TSP cadmium

Figure 15. Ambient concentrations of cadmium (one day in six monitoring) at North Ward site. Annual average concentrations (µg/m^3), July 2024 to June 2025.

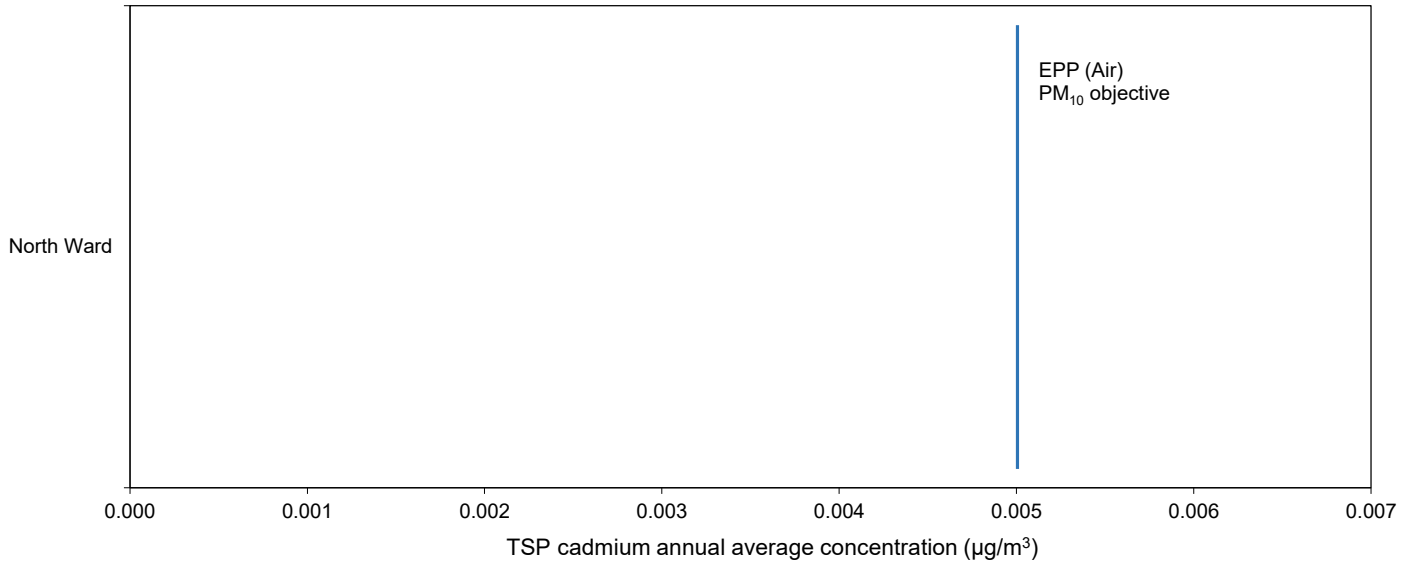


Table 17. Ambient concentrations of TSP cadmium. Annual average and monthly maximum 24-hour concentrations (µg/m^3) for one day in six monitoring, July 2024 to June 2025.

Site		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Townsville													
North Ward													
Annual average:	<0.001												
Maximum 24-hour		<0.001	0.001	0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.001	0.001	0.001
% I.A.		100	100	100	100	100	100	100	100	100	100	100	100

% I.A. indicates instrument availability. - indicates less than three-fifths of the data are available. n.d. indicates no data are available.

The Environmental Protetion (Air) Policy 2019 air quality objective for cadmium is an annual average of 0.005µg/m^3 (measured as the total metal content in PM_{10} particles).

Monitoring conducted by the Queensland Government measures the amount of cadmium present in the TSP fraction. As PM_{10} is a subset of TSP, if the TSP cadmium concentration is less than the EPP (Air) PM_{10} objective value, it follows that the PM_{10} cadmium concentration complies with the EPP (Air) objective.

The limit of reporting is the minimum measured cadmium concentration that can be determined with the sampling equipment and laboratory method used. Cadmium concentrations below this limit are preceded by a "<" sign in the table.

Dustfall

Figure 16. Dust deposition rates at North Ward site. Daily dust (insoluble solids fraction) deposition rate (mg/m^2/day), for month of June 2025.

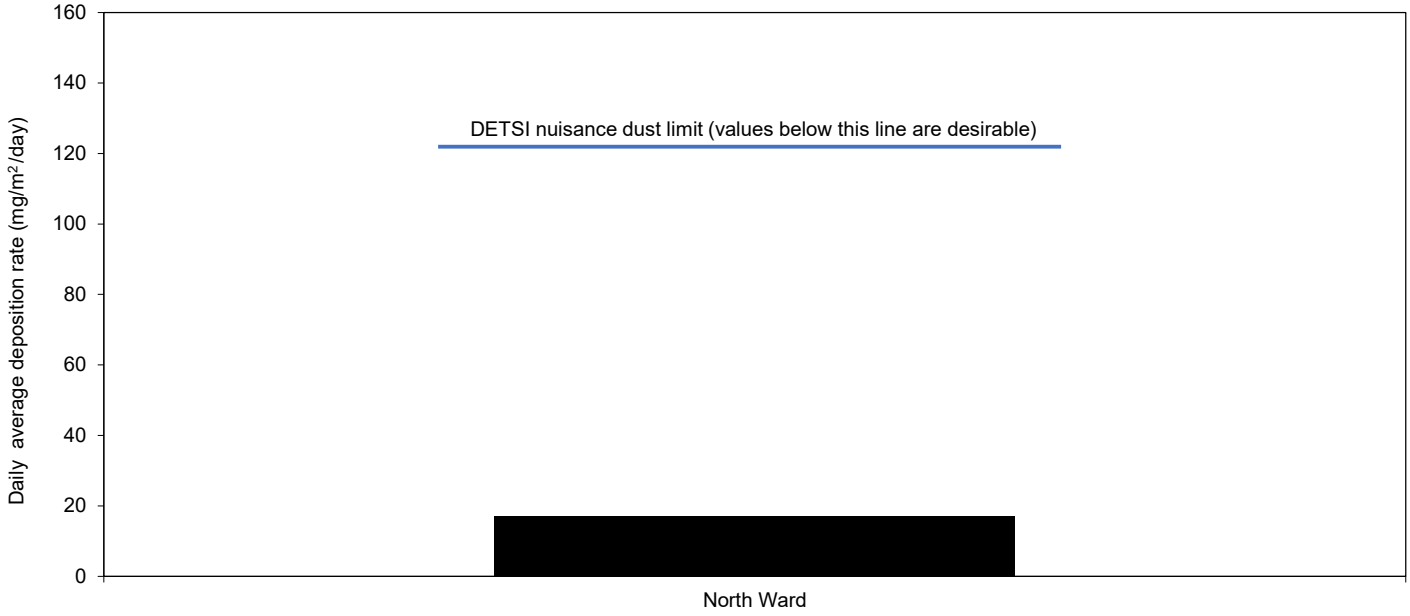


Table 18. Daily average dust (insoluble fraction) deposition rate (mg/m^2/day) for each month, July 2024 to June 2025.

Site	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Townsville												
North Ward												
Daily average	13	27	17	20	57	13	13	17	10	13	23	17

n.d. indicates no data are available.

There is no national guideline for dust deposition.

The Department of the Environment, Tourism, Science and Innovation 'Application requirements for activities with impacts to air Guideline' recommends a dust deposition limit of 120mg/m^2/day, averaged over one month, be used to assess dust nuisance.

There is a minimum dust deposition rate that can be determined with the sampling equipment and laboratory method used. Dust deposition rates below this minimum reporting value are preceded by a "<" sign in this table.

Dustfall lead

Figure 17. Dustfall lead monitoring at North Ward site. Daily average lead deposition rate (µg/m^2/day) for month of June, 2025.

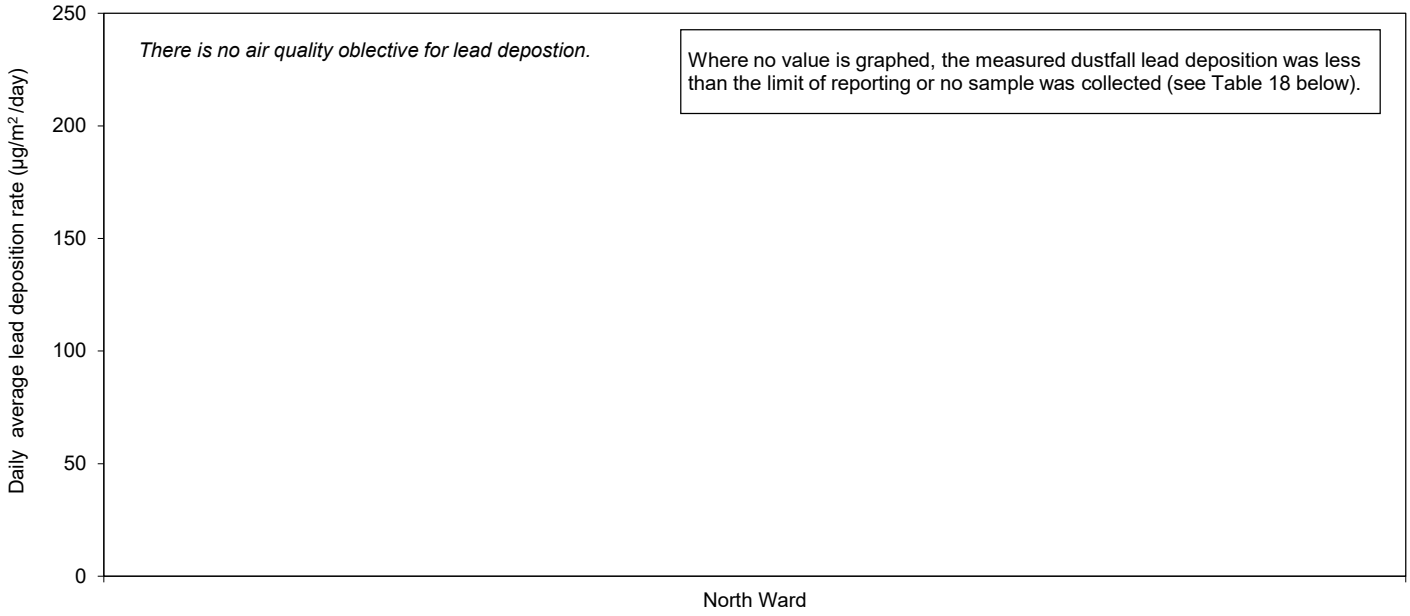


Table 19. Daily average lead deposition rate (µg/m^2/day) for each month, July 2024 to June 2025.

Site		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Townsville													
North Ward													
Annual average:	<33												
Lead		<33	33	<33	<33	33	<33	<33	<33	<33	<33	<33	<33

n.d. indicates no data are available.

There is no air quality objective for ambient lead deposition. Some data indicate that lead fallout levels between 250 and 750µg/m^2/day (averaged over a 12-month period) are associated with a slight increase in blood lead levels (Air Quality Guidelines for Europe, Second Edition, World Health Organization, 2000).

The limit of reporting is the minimum measured lead deposition rate that can be determined with the sampling equipment and laboratory method used. Lead deposition rates below this limit are preceded by a "<" sign in the table.

Measured ambient concentrations - Mount Isa

Sulfur dioxide

Figure 18. Ambient concentrations of sulfur dioxide at The Gap site. Daily 24-hour average concentrations (ppm), June 2025.

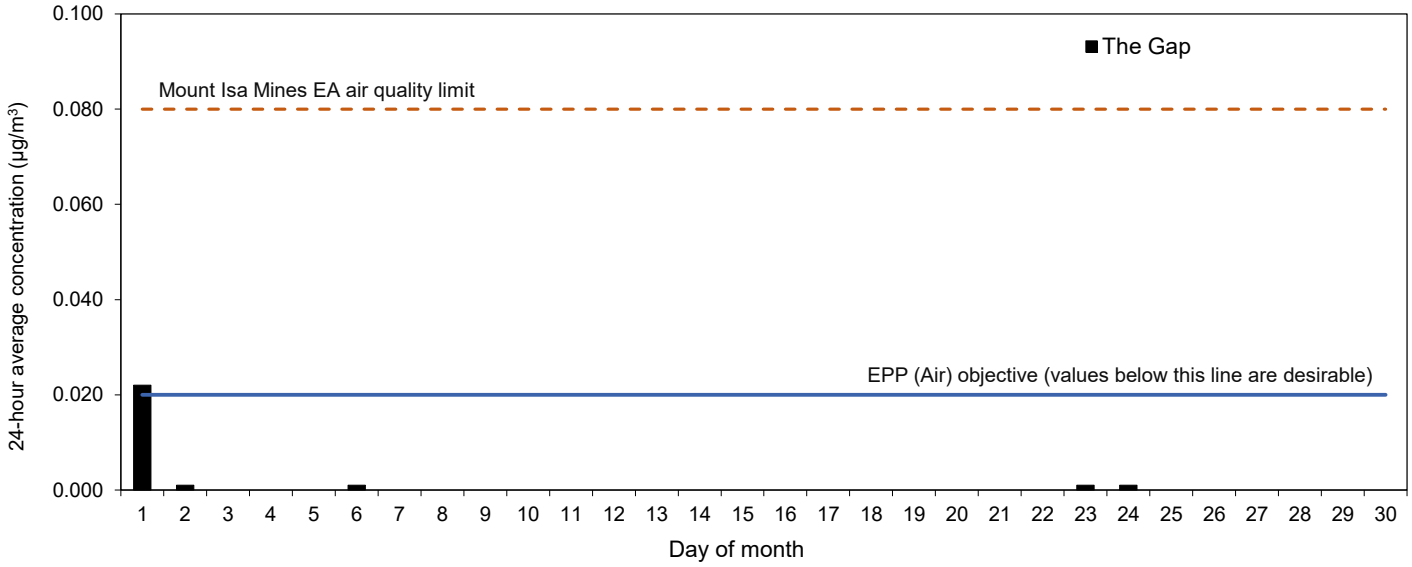


Figure 19. Ambient concentrations of sulfur dioxide at The Gap site. Daily maximum 1-hour average concentrations (ppm), June 2025.

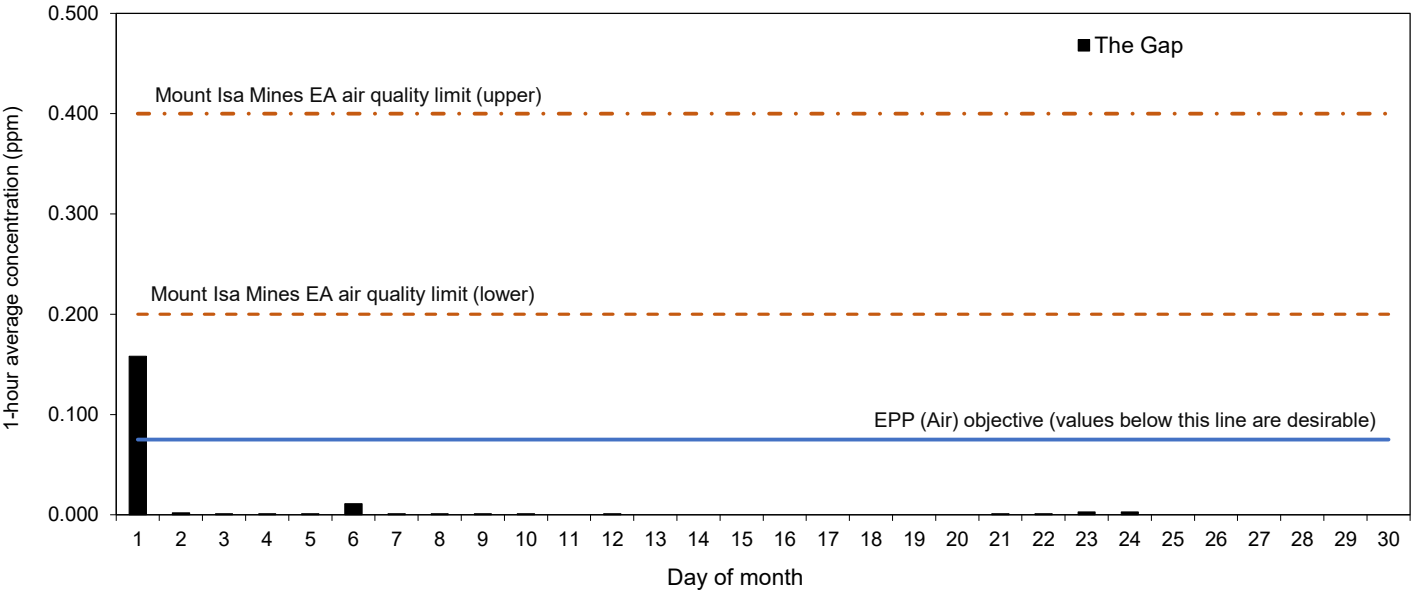


Table 20. Ambient concentrations of sulfur dioxide. Annual average and monthly maximum 24-hour and 1-hour average concentrations (ppm), July 2024 to June 2025.

Site		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Mount Isa													
The Gap													
Annual average:	0.003												
Maximum 24-hour		0.006	0.029	0.010	0.014	0.021	0.028	0.026	0.012	0.031	0.005	0.008	0.022
Maximum 1-hour		0.070	0.140	0.060	0.123	0.323	0.224	0.118	0.065	0.384	0.033	0.029	0.158
% I.A.		100	100	100	99	100	100	100	99	99	100	99	100

% I.A. indicates instrument availability. - indicates less than three-fifths of the data are available. n.d. indicates no data are available.

The EPP (AIr) air quality objectives for sulfur dioxide are a 24-hour average of 0.020ppm and a 1-hour average of 0.075ppm.

The Mount Isa Mines Environmental Authority air quality limits for sulfur dioxide are a 24-hour average of 0.080ppm (not to be exceeded on more than two days), a 1-hour average of 0.200ppm (not to be exceeded on more than 110 hours) and a 1-hour average of 0.400ppm (not to be exceeded on more than 22 hours) between 1 January and 31 December 2025.

PM_{10}

Figure 20. Ambient concentrations of PM_{10} at The Gap site. Daily 24-hour average concentrations (µg/m^3), June 2025.

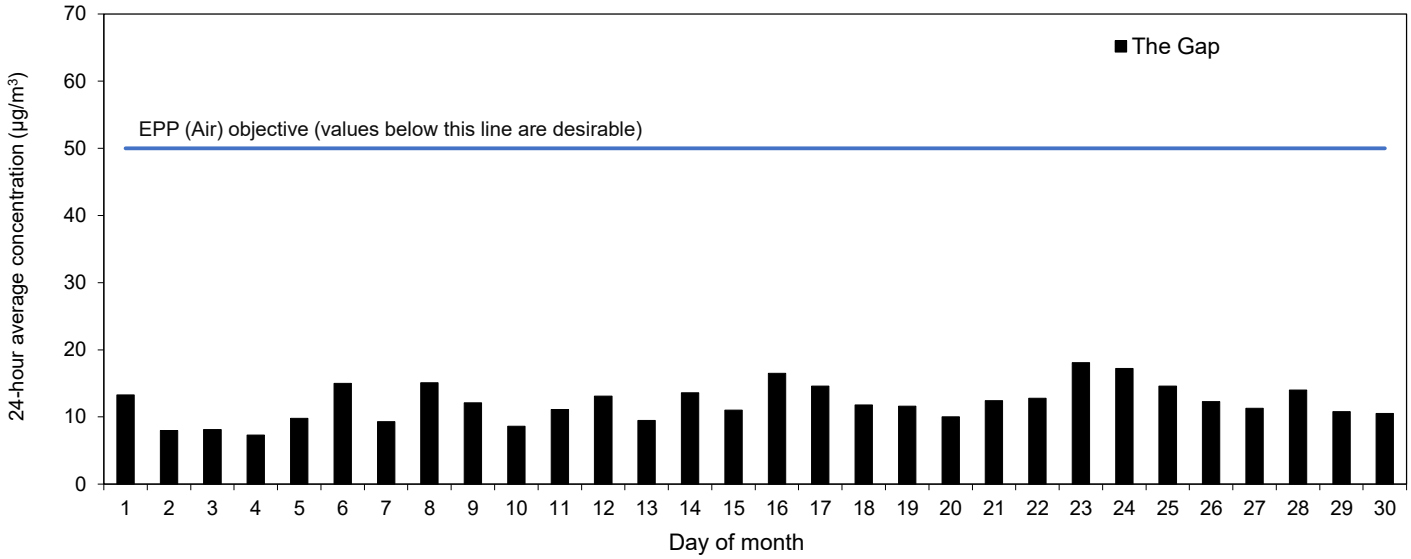


Table 21. Ambient concentrations of PM_{10}. Annual average and monthly maximum 24-hour and 1-hour average concentrations (µg/m^3), July 2024 to June 2025.

Site		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Mount Isa													
The Gap													
Annual average:	15.6												
Maximum 24-hour		24.3	29.6	54.8	81.8	67.1	24.0	30.6	25.3	26.8	15.5	16.2	18.1
% I.A.		100	100	100	100	100	99	100	99	99	100	99	100

% I.A. indicates instrument availability. - indicates less than three-fifths of the data are available. n.d. indicates no data are available.

The EPP (AIr) air quality objectives for PM_{10} are an annual average of 25µg/m^3 and a 24-hour average of 50µg/m^3.

$PM_{2.5}$

Figure 21. Ambient concentrations of $PM_{2.5}$ at The Gap site. Daily 24-hour average concentrations (µg/m^3), June 2025.

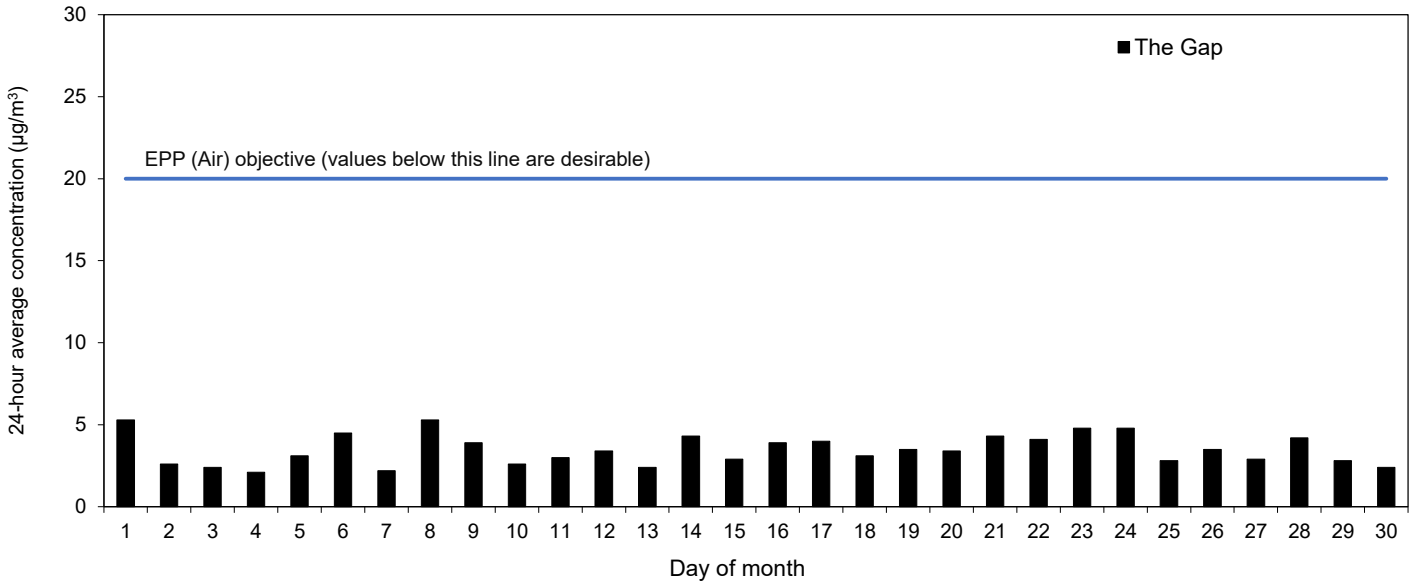


Table 22. Ambient concentrations of $PM_{2.5}$. Annual average and monthly maximum 24-hour concentrations (µg/m^3), July 2024 to June 2025.

Site		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Mount Isa													
The Gap													
Annual average:	6.1												
Maximum 24-hour		7.0	13.0	21.5	65.6	51.6	15.4	22.1	6.7	7.6	6.4	5.8	5.3
% I.A.		100	100	100	100	100	99	100	99	99	100	99	100

% I.A. indicates instrument availability. - indicates less than three-fifths of the data are available. n.d. indicates no data are available.

The EPP (AIr) air quality objectives for $PM_{2.5}$ are an annual average of 7µg/m^3 and a 24-hour average of 20µg/m^3.

TSP lead

Figure 22. Ambient concentrations of TSP lead (one day in six monitoring) at The Gap site. Annual average concentrations (µg/m^3), July 2024 to June 2025.

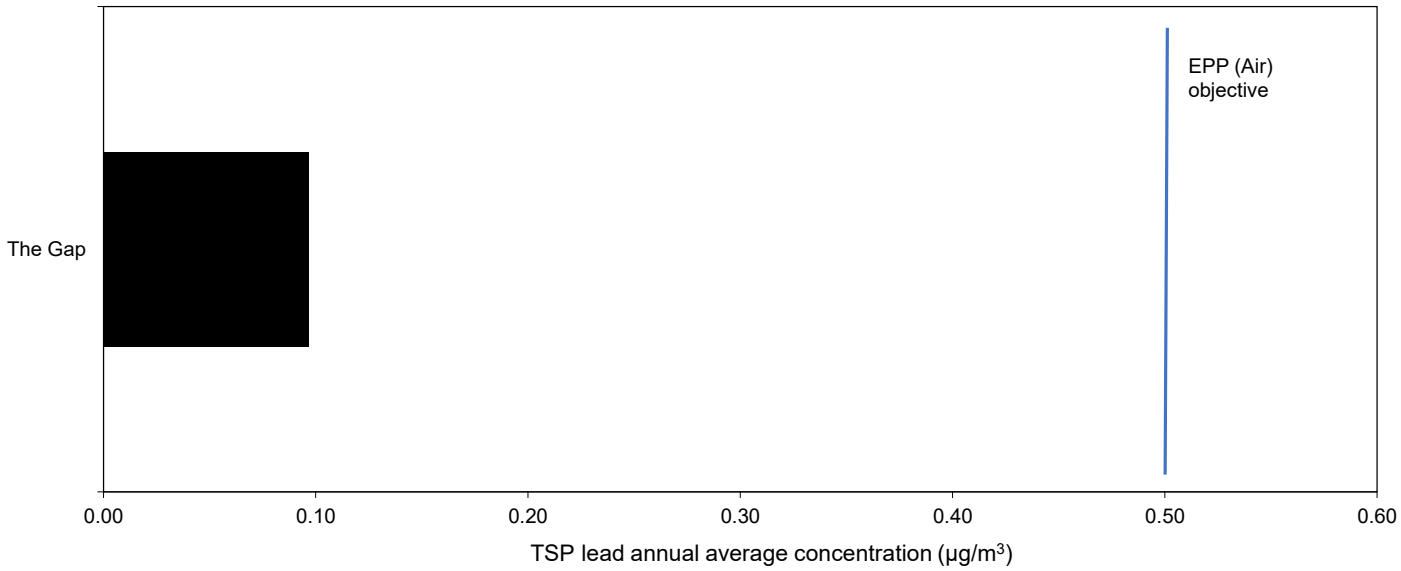


Table 23. Ambient concentrations of TSP lead. Annual average and monthly maximum 24-hour concentrations (µg/m^3) for one day in six monitoring, July 2024 to June 2025.

Site		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Mount Isa													
The Gap													
Annual average:	0.10												
Maximum 24-hour		0.02	0.32	0.80	0.27	1.22	0.07	0.42	0.11	0.08	0.03	0.01	0.02
% I.A.		100	100	100	100	100	100	100	80	80	80	80	100

% I.A. indicates instrument availability. - indicates less than three-fifths of the data are available. n.d. indicates no data are available.

The EPP (AIr) air quality objective for lead is an annual average of 0.5µg/m^3.

The limit of reporting is the minimum measured lead concentration that can be determined with the sampling equipment and laboratory method used. Lead concentrations below this limit are preceded by a "<" sign in the table.

PM_{10} arsenic

Figure 23. Ambient concentrations of PM_{10} arsenic (one day in six monitoring) at The Gap site. Annual average concentrations (µg/m^3), July 2024 to June 2025.

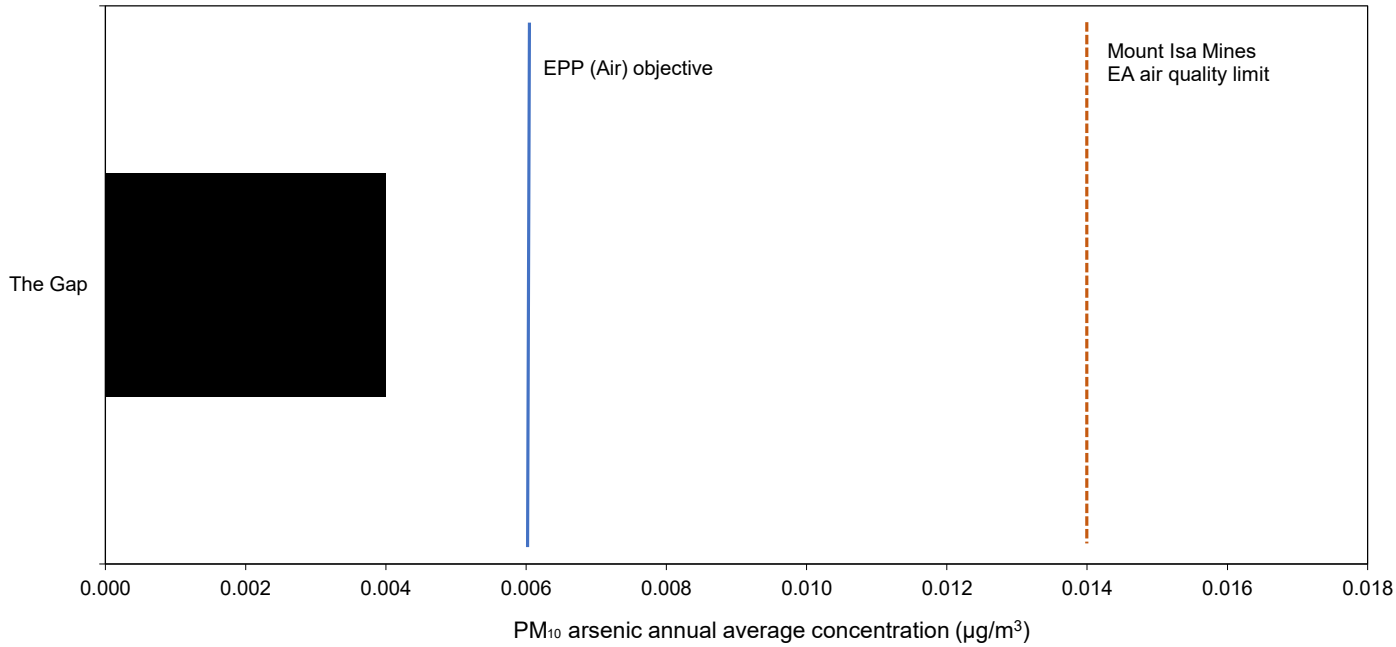


Table 24. Ambient concentrations of PM_{10} arsenic. Annual average and monthly maximum 24-hour concentrations (µg/m^3) for one day in six monitoring, July 2024 to June 2025.

Site		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Mount Isa													
The Gap													
Annual average:	0.004												
Maximum 24-hour		0.001	0.046	0.019	0.008	0.006	0.003	0.017	0.002	0.005	0.001	0.001	0.001
% I.A.		100	100	100	100	100	100	100	80	80	80	80	100

% I.A. indicates instrument availability. - indicates less than three-fifths of the data are available. n.d. indicates no data are available.

The EPP (AIr) air quality objective for arsenic is an annual average of 0.006µg/m^3 (measured as the total metal content in PM_{10} particles).

The Mount Isa Mines Environmental Authority air quality limit for arsenic is an annual average of 0.014µg/m^3 (measured as the total metal content in PM_{10} particles between 1 January and 31 December 2024).

Monitoring conducted by the Queensland Government measures the amount of arsenic present in the TSP fraction (the TSP fraction is collected so lead levels can be compared against the EPP (Air) objective). Monitoring using co-located TSP and PM_{10} high volume samplers has determined that the ratio of PM_{10} arsenic to TSP arsenic is 0.88:1 in Mount Isa. The PM_{10} arsenic values presented in this table have been generated by applying this factor to the measured TSP arsenic concentrations.

The limit of reporting is the minimum measured arsenic concentration that can be determined with the sampling equipment and laboratory method used. Arsenic concentrations below this limit are preceded by a "<" sign in the table.

PM_{10} cadmium

Figure 24. Ambient concentrations of PM_{10} cadmium (one day in six monitoring) at The Gap site. Annual average concentrations (µg/m^3), July 2024 to June 2025.

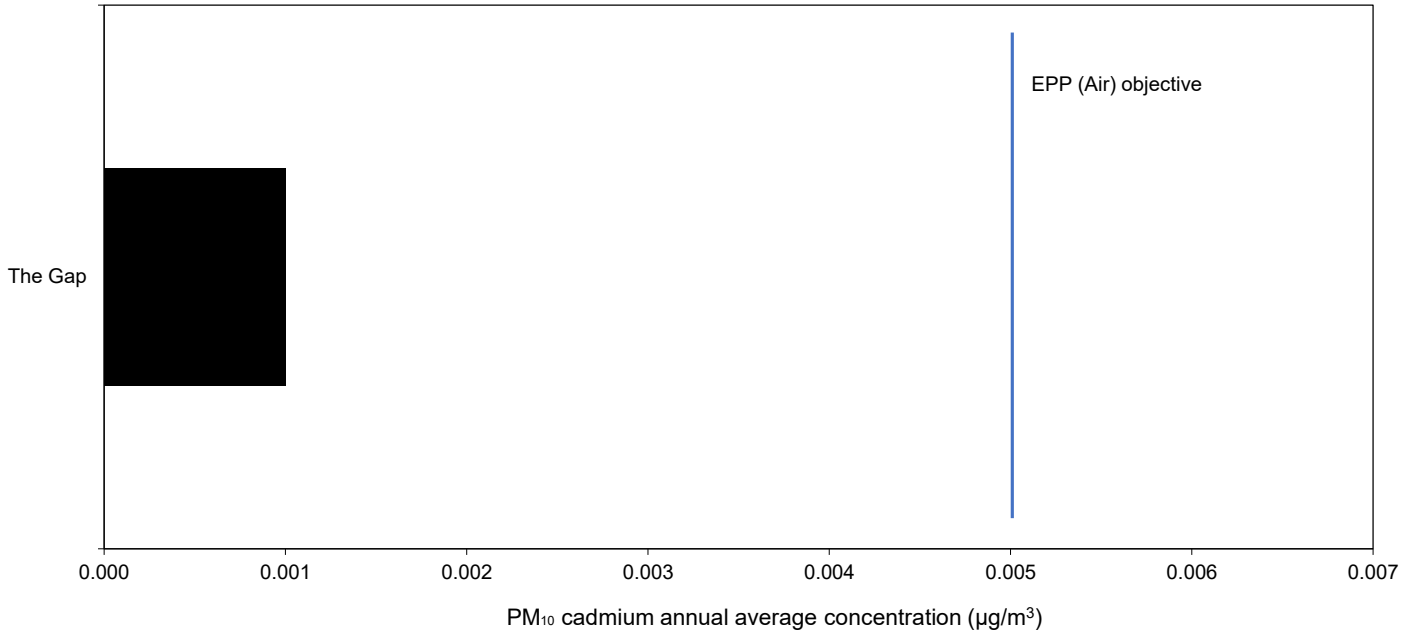


Table 25. Ambient concentrations of PM_{10} cadmium. Annual average and monthly maximum 24-hour concentrations (µg/m^3) for one day in six monitoring, July 2024 to June 2025.

Site		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Mount Isa													
The Gap													
Annual average:	0.001												
Maximum 24-hour		<0.001	0.003	0.008	0.002	0.022	0.001	0.004	0.001	0.001	<0.001	<0.001	<0.001
% I.A.		100	100	100	100	100	100	100	80	80	80	80	100

% I.A. indicates instrument availability. - indicates less than three-fifths of the data are available. n.d. indicates no data are available.

The EPP (AIr) air quality objective for cadmium is an annual average of 0.005µg/m^3 (measured as the total metal content in PM_{10} particles).

Monitoring conducted by the Queensland Government measures the amount of cadmium present in the TSP fraction (the TSP fraction is collected so lead levels can be compared against the EPP(Air) objective). Monitoring using co-located TSP and PM_{10} high volume samplers has determined that the ratio of PM_{10} cadmium to TSP cadmium is 0.76:1 in Mount Isa. The PM_{10} cadmium values presented in this table have been generated by applying this factor to the measured TSP cadmium concentrations.

The limit of reporting is the minimum measured cadmium concentration that can be determined with the sampling equipment and laboratory method used. Cadmium concentrations below this limit are preceded by a "<" sign in the table.

Data availability

When required, Table 26 summarises the reasons for data availability below the minimum criteria for reporting at northern Queensland monitoring sites.

Table 26. Reasons for low data availability at northern Queensland ambient air monitoring sites during June 2025.

Station	Air Pollutant	Cause
Nil		

Related air quality information

Current hourly air quality data is available online at https://apps.des.qld.gov.au/air-quality/.

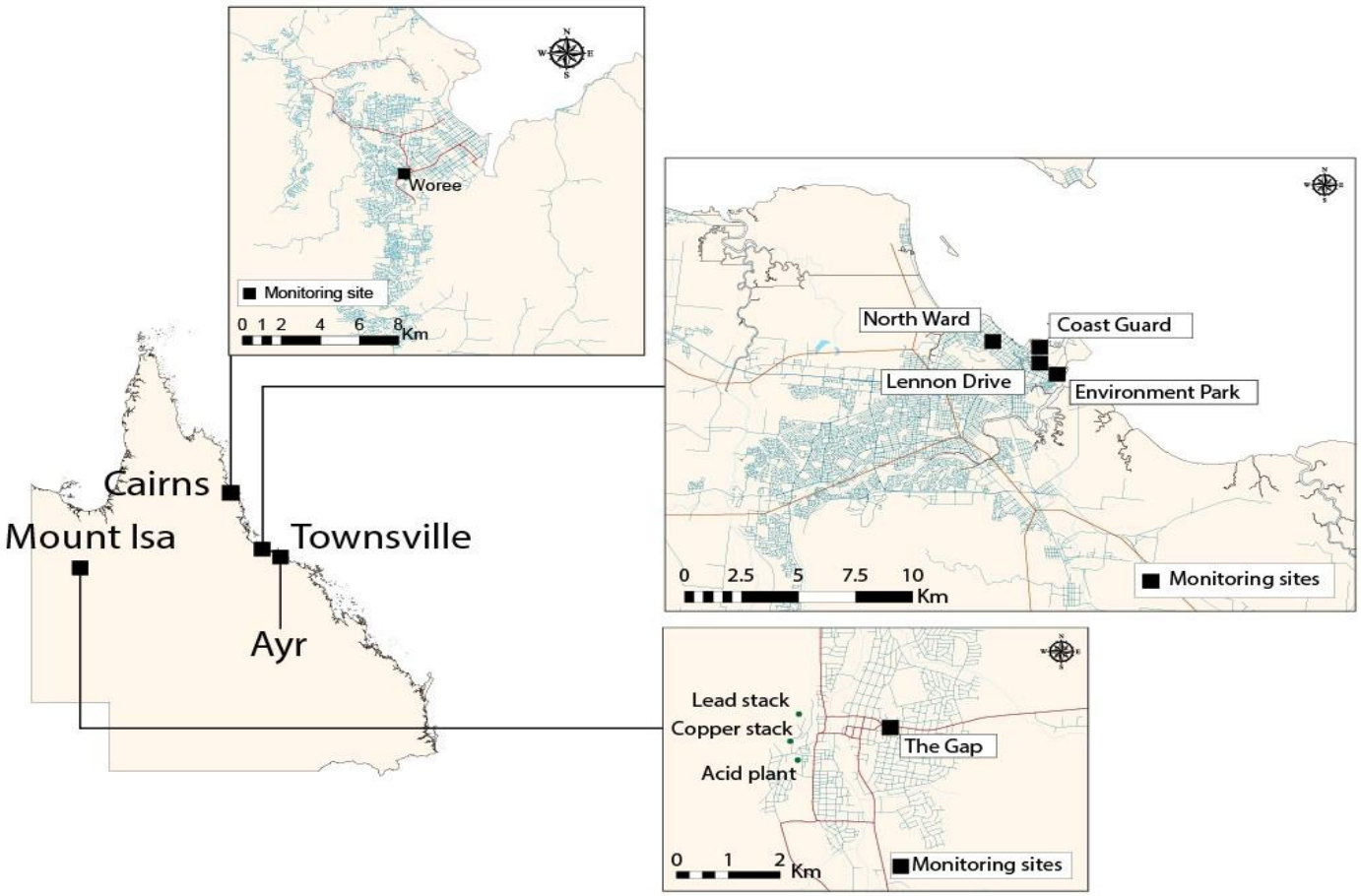
Additional information on air quality monitoring and related issues is also available from the above website.

Further information

For further information about the data presented in this bulletin or related publications, contact:

Air Quality Monitoring
Coastal and Air Unit
Science Division
Department of the Environment, Tourism, Science and Innovation
Ecosciences Precinct
41 Boggo Rd
DUTTON PARK QLD 4102
Telephone (07) 3170 5477
Email: air.sciences@detsi.qld.gov.au

Figure 25. Northern Queensland ambient air quality monitoring site locations.



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