

# Air quality bulletin

Central Queensland

June 2024



Queensland  
Government

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

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January 2025

## 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.

In Central Queensland, air quality monitoring was carried out by the Queensland Government at eight sites in the Gladstone region, two sites in Moranbah, and one site in Mackay, Emerald, Blackwater and Bluff during June 2024.

Air pollutants monitored included nitrogen dioxide, sulfur dioxide, carbon monoxide, ozone, benzene, toluene, total xylenes, formaldehyde, PM<sub>10</sub> and PM<sub>2.5</sub> (particles with diameters less than 10µm and 2.5µm respectively) and visibility-reducing particles. The air pollutants monitored at Central Queensland sites are shown in Table 1. Site locations are shown in Figure 25 at the end of this bulletin.

The monitoring site in central Gladstone (Memorial Park) uses an open-path monitoring method. Pollutant measurements at this site are the average concentration over the light path running from the Gladstone Entertainment Centre to Memorial Park (see Figure 25).

The monitoring site at Fisherman's Landing was established in March 2016 to measure the impact of any emissions from LNG facilities situated on Curtis Island. The site is located on industrial land and, as such, measured pollutant levels do not reflect typical population exposure in the Gladstone region.

The Moranbah (East) site on Utah Drive was established in March 2011 to assess the impact of coal mining operations on the community. In July 2020 a second Moranbah (West) site on Cunningham Way was commissioned to further assess mining impacts.

The Blackwater and Bluff monitoring sites were established in February 2019 and November 2020 respectively to also assess the impact of coal mining operations. The Emerald site was established in February 2020 to obtain information on particle levels in an inland community not impacted by mining activities.

## 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

The maximum recorded level for each day is used to show the day-to-day variation in air quality. Figures 1 to 19 summarise the air quality data for the Gladstone region sites and figures 20 to 24 summarise the air quality data for the Mackay and Inland Central Queensland sites.

## Air quality summary tables

Tables 4 to 17 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 or other reason, this is indicated by the abbreviation 'n.d.' (no data). A dash is inserted when less than three-fifths of the data are available. Where no data is recorded, the reason for the low data availability is summarised in Table 18 at the end of this bulletin.

## Guidelines

Air quality measurements are compared against air quality standards contained in the Queensland Environmental Protection (Air) Policy 2019 (EPP (Air)) to assess whether pollutant levels could harm health and wellbeing. The EPP (Air) visibility objective is used to assess the impact of visibility-reducing particles on visual air quality. The relevant guidelines are shown in the air quality summary table for each pollutant.

Table 1. Air pollutants monitored at Central Queensland sites.

		Nitrogen dioxide	Sulfur dioxide	Carbon monoxide	Ozone	Benzene	Toluene	Total xylenes	Formaldehyde	PM <sub>10</sub>	PM <sub>2.5</sub>	Visibility-reducing particles
<b>Gladstone region</b>	Targinie	✓	✓							✓	✓	✓
	Fisherman's Landing									✓	✓	✓
	Boat Creek	✓	✓							✓	✓	✓
	Clinton	✓	✓							✓	✓	✓
	Auckland Point									✓		
	Memorial Park	✓	✓		✓	✓	✓	✓	✓			
	South Gladstone	✓	✓							✓	✓	✓
	Boyne Island	✓	✓	✓						✓	✓	✓
<b>Mackay Inland Central Queensland</b>	West Mackay									✓	✓	✓
	Moranbah (East)									✓	✓	
	Moranbah (West)									✓	✓	
	Blackwater									✓	✓	
	Bluff									✓		
	Emerald									✓	✓	

## Compliance with air quality guidelines - Gladstone region

During June, measured pollutant levels, with the exception of PM<sub>10</sub>, did not exceed EPP (Air) air quality objectives at the Queensland Government air monitoring sites in the Gladstone region.

The EPP (Air) 24-hour PM<sub>10</sub> objective was exceeded at the Fisherman's Landing monitoring site on five days during June. On all exceedance days the elevated PM<sub>10</sub> levels occurred during light winds from a south to south-westerly direction. Activities taking place within the industrial area where the Fisherman's Landing monitoring site is located, in particular vehicle movements on unsealed roads, are likely to have been responsible. The elevated dust levels did not extend beyond the industrial area, as demonstrated by the significantly lower corresponding measurements at the nearby Boat Creek and Targinie monitoring sites on these days.

Table 2. Number of occasions during June when measured levels exceeded EPP (Air) objectives for nitrogen dioxide, sulfur dioxide, carbon monoxide, ozone, benzene, toluene, xylenes, formaldehyde, PM<sub>10</sub>, PM<sub>2.5</sub> and visibility-reducing particles at the Queensland Government air monitoring sites in the Gladstone region.

Air Pollutant	Averaging period	Exceedances
Nitrogen dioxide	<i>EPP (Air)</i>	
	Annual	0
	1-hour	0
Sulfur dioxide	<i>EPP (Air)</i>	
	Annual	0
	24-hour	0
	1-hour	0
Carbon monoxide	<i>EPP (Air)</i>	
	8-hour	0
Ozone	<i>EPP (Air)</i>	
	4-hour	0
	1-hour	0
Benzene	<i>EPP (Air)</i>	
	Annual	0
Toluene	<i>EPP (Air)</i>	
	Annual	0
	24-hour	0
Xylenes	<i>EPP (Air)</i>	
	Annual	0
	24-hour	0
Formaldehyde	<i>EPP (Air)</i>	
	24-hour	0
PM <sub>10</sub>	<i>EPP (Air)</i>	
	Annual	0
	24-hour	5
PM <sub>2.5</sub>	<i>EPP (Air)</i>	
	Annual	0
	24-hour	0
Visibility-reducing particles (refers to protecting aesthetic environment, not health and wellbeing).	<i>EPP (Air)</i>	
	1-hour	0

### Compliance with air quality guidelines - Mackay and inland Central Queensland.

During June, measured pollutant levels, with the exception of PM<sub>10</sub>, did not exceed EPP (Air) air quality objectives at the Queensland Government air monitoring sites in Mackay, Moranbah, Emerald, Blackwater and Bluff.

During June the EPP (Air) 24-hour PM<sub>10</sub> objective was exceeded on five days at the Moranbah (West) monitoring site and on two days at the Moranbah (East) monitoring site. With very little rainfall in the preceding three months, background dust levels at Moranbah from sources including mining activities and wind erosion of dry ground surfaces were elevated during much of June until significant rainfall late in the month. All exceedances of the 24-hour PM<sub>10</sub> objective at the two Moranbah monitoring sites could be attributed to a combination of the elevated background PM<sub>10</sub> levels coupled with brief periods of high PM<sub>10</sub> concentrations during calm or light wind conditions indicative of a short-term localised dust source in the immediate vicinity of the monitoring station such as vehicle movements on unsealed roads.

PM<sub>10</sub> levels at the Bluff monitoring site exceeded the EPP (Air) 24-hour objective on 21 June. Elevated PM<sub>10</sub> concentrations were largely associated with westerly winds, indicating that any contribution from nearby coal mining activities would have been minor. The primary source of the dust could not be identified.

Over the 12-month period ending June 2024, the EPP (Air) annual average PM<sub>10</sub> objective was exceeded at the Moranbah (West) monitoring site. Monitoring indicates that a range of particle sources contributed to this exceedance, including mining operations, erosion of dry ground surfaces by strong winds, local activities such as vehicle movements on unsealed roads close to the monitoring site and bushfire smoke events.

Over the 12-month period ending June 2024, the EPP (Air) annual average PM<sub>10</sub> objective was exceeded at the Bluff monitoring site. Local PM<sub>10</sub> emission sources, including dust from mining operations, together with additional PM<sub>10</sub> emissions from large regional bushfire smoke events in September and October 2023, led to this exceedance.

Table 3. Number of occasions during June when measured levels exceeded EPP (Air) objectives for PM<sub>2.5</sub>, PM<sub>10</sub>, and visibility-reducing particles at Queensland Government air monitoring sites in Mackay, Moranbah, Emerald, Blackwater and Bluff.

Pollutant	Averaging period	Exceedences
PM <sub>10</sub>	<i>EPP (Air)</i>	
	Annual	2
PM <sub>2.5</sub>	24-hour	8
	<i>EPP (Air)</i>	
Visibility-reducing particles (refers to protecting aesthetic environment, not health and wellbeing).	Annual	0
	24-hour	0
Visibility-reducing particles (refers to protecting aesthetic environment, not health and wellbeing).	<i>EPP (Air)</i>	
	1-hour	0

## Measured ambient concentrations - Gladstone region

### Nitrogen dioxide

Figure 1. Ambient concentrations of nitrogen dioxide at Targinie, Boat Creek and Clinton sites. Daily maximum 1-hour average concentrations (ppm), June 2024.

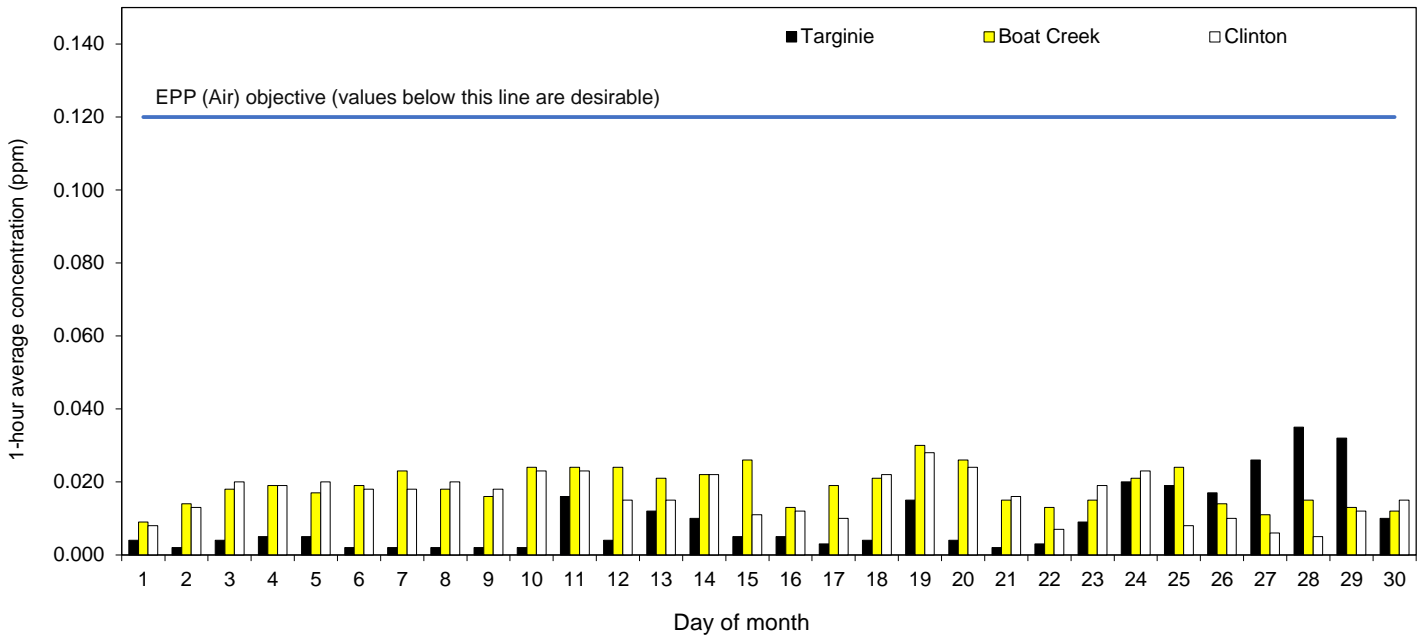


Figure 2. Ambient concentrations of nitrogen dioxide at Memorial Park, South Gladstone and Boyne Island sites. Daily maximum 1-hour average concentrations (ppm), June 2024.

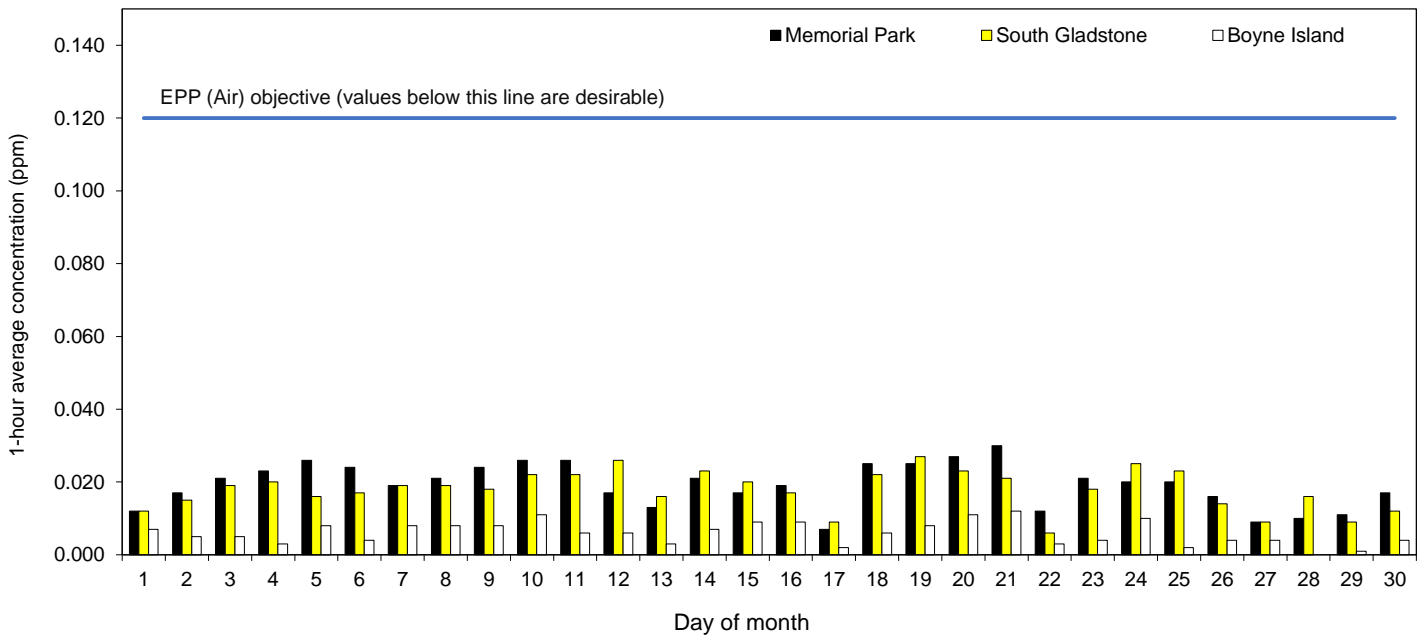


Table 4. Ambient concentrations of nitrogen dioxide. Annual average and monthly maximum 1-hour concentrations (ppm), July 2023 to June 2024.

Site	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
<b>Gladstone region</b>												
<b>Targinie</b>												
Annual average:	0.004											
Maximum 1-hour	0.032	0.037	0.036	0.035	0.030	0.029	0.034	0.026	0.026	0.025	0.035	0.035
% I.A.	100	99	100	100	100	99	100	95	100	100	100	100
<b>Boat Creek</b>												
Annual average:	0.005											
Maximum 1-hour	0.024	0.031	0.037	0.028	0.025	0.027	0.026	0.017	0.021	0.022	0.031	0.030
% I.A.	100	100	100	100	100	97	100	85	100	96	100	99
<b>Clinton</b>												
Annual average:	0.004											
Maximum 1-hour	0.023	0.022	0.025	0.030	0.028	0.017	0.027	0.014	0.034	0.015	0.021	0.028
% I.A.	100	99	100	99	99	100	99	100	100	100	99	99
<b>Memorial Park</b>												
Annual average:	0.004											
Maximum 1-hour	0.031	0.029	0.024	0.019	0.021	0.023	0.024	0.012	0.020	0.017	0.022	0.030
% I.A.	99	100	99	100	100	99	98	94	99	97	100	98
<b>South Gladstone</b>												
Annual average:	0.004											
Maximum 1-hour	0.030	0.027	0.032	0.028	0.026	0.024	0.018	0.013	0.021	0.016	0.020	0.027
% I.A.	99	96	99	99	100	84	98	99	100	100	99	100
<b>Boyne Island</b>												
Annual average:	0.001											
Maximum 1-hour	0.009	0.024	0.022	0.012	0.015	0.017	0.004	0.005	0.005	-	0.010	0.012
% I.A.	99	100	100	99	100	100	99	99	100	55	95	98
% I.A. indicates instrument availability. - indicates less than three-fifths of the data are available. n.d. indicates no data are available.												
The Environmental Protection (Air) Policy 2019 air quality objectives for nitrogen dioxide are an annual average of 0.030ppm and a 1-hour average of 0.120ppm.												

### Sulfur dioxide

Figure 3. Ambient concentrations of sulfur dioxide at Targinie, Boat Creek and Clinton sites. Daily 24-hour average concentrations (ppm), June 2024.

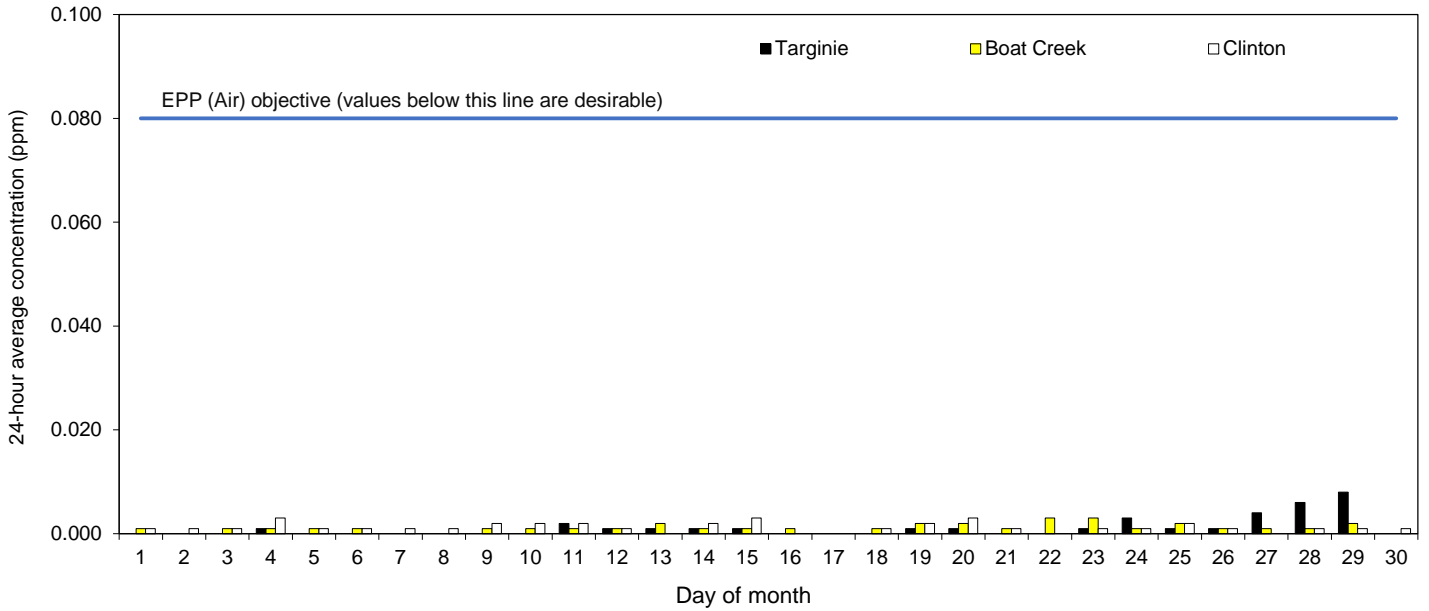


Figure 4. Ambient concentrations of sulfur dioxide at Memorial Park, South Gladstone and Boyne Island sites. Daily 24-hour average concentrations (ppm), June 2024.

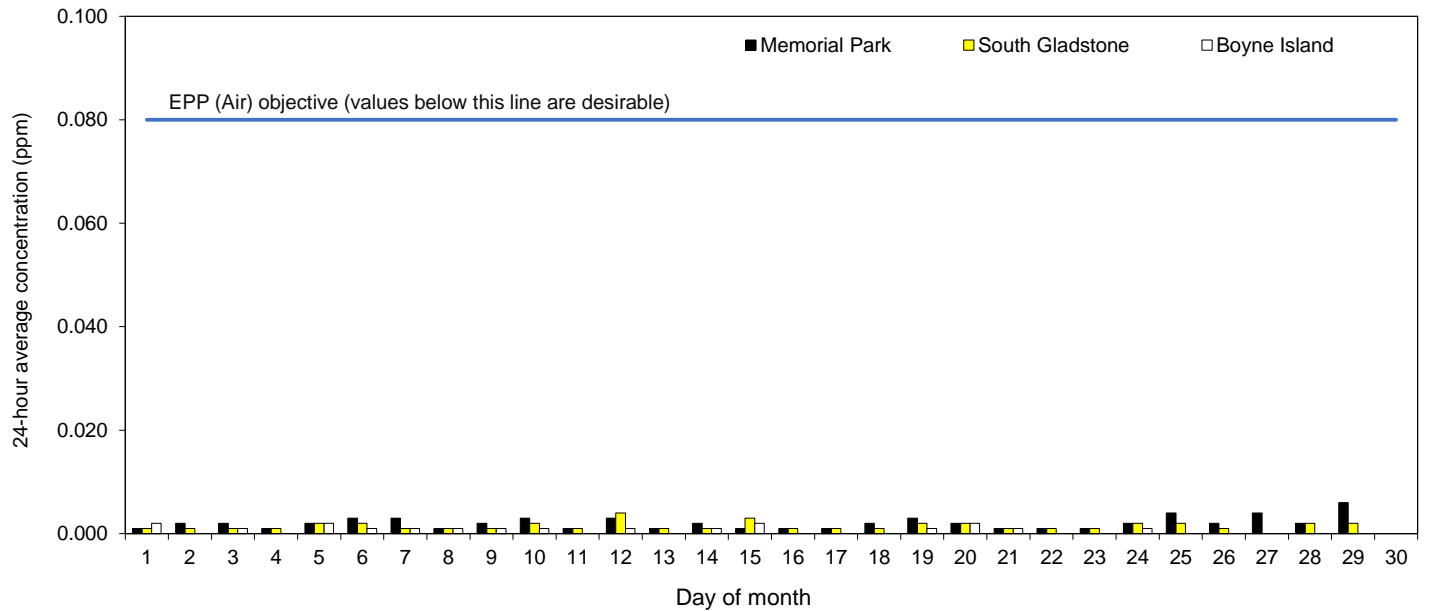




Figure 5. Ambient concentrations of sulfur dioxide at Targinie, Boat Creek and Clinton sites. Daily maximum 1-hour average concentrations (ppm), June 2024.

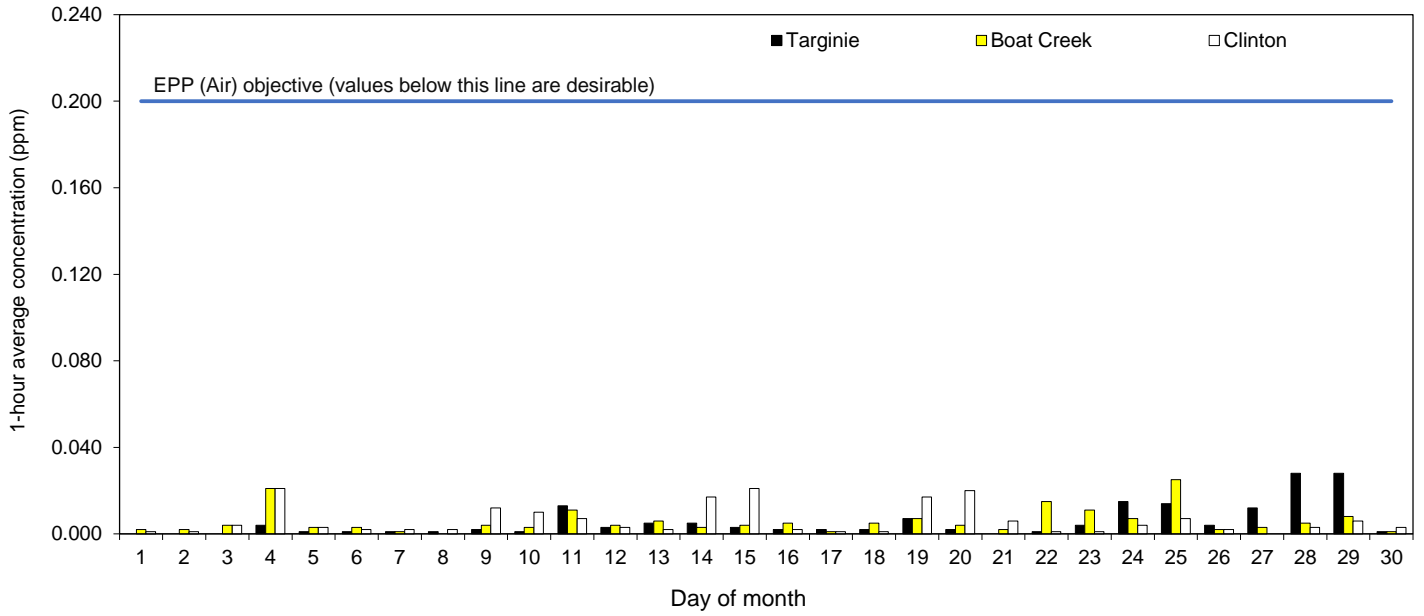


Figure 6. Ambient concentrations of sulfur dioxide at Memorial Park, South Gladstone and Boyne Island sites. Daily maximum 1-hour average concentrations (ppm), June 2024.

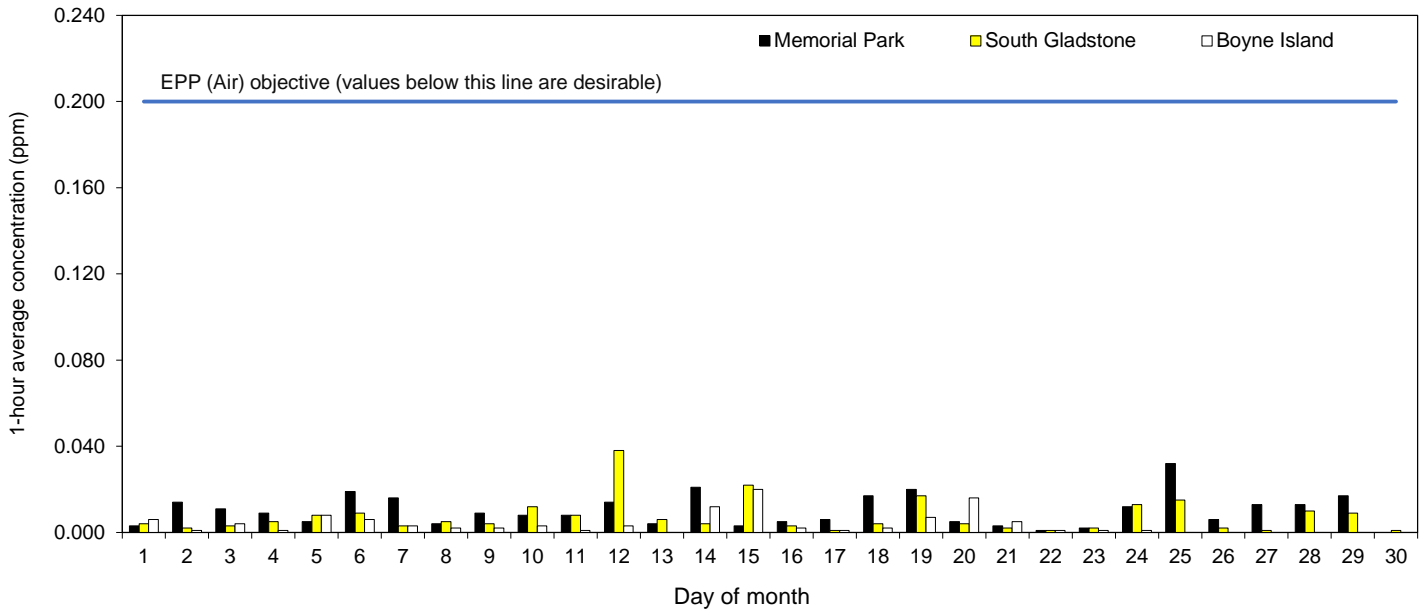


Table 5. Ambient concentrations of sulfur dioxide. Annual average and monthly maximum 24-hour and 1-hour average concentrations (ppm), July 2023 to June 2024.

Site	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
<b>Gladstone region</b>												
<b>Targinie</b>												
Annual average:	0.002											
Maximum 24-hour	0.006	0.005	0.005	0.005	0.007	0.006	0.005	0.006	0.010	0.005	0.005	0.008
Maximum 1-hour	0.024	0.035	0.024	0.024	0.025	0.020	0.023	0.026	0.032	0.023	0.025	0.028
% I.A.	99	99	100	100	100	99	100	61	100	100	68	92
<b>Boat Creek</b>												
Annual average:	0.002											
Maximum 24-hour	0.007	0.003	0.010	0.006	0.004	0.006	0.007	0.005	0.004	0.004	0.005	0.003
Maximum 1-hour	0.034	0.024	0.049	0.024	0.022	0.024	0.035	0.022	0.033	0.032	0.039	0.025
% I.A.	100	100	100	100	100	99	99	85	100	99	100	99
<b>Clinton</b>												
Annual average:	0.001											
Maximum 24-hour	0.002	0.001	0.002	0.005	0.001	0.001	0.001	0.002	0.001	0.003	0.001	0.003
Maximum 1-hour	0.011	0.008	0.022	0.052	0.014	0.012	0.005	0.015	0.005	0.012	0.007	0.021
% I.A.	100	64	100	99	99	99	99	99	99	100	99	99
<b>Memorial Park</b>												
Annual average:	0.002											
Maximum 24-hour	0.010	0.005	0.008	0.005	0.005	0.005	0.004	0.006	0.006	0.007	0.007	0.006
Maximum 1-hour	0.037	0.043	0.035	0.026	0.024	0.031	0.018	0.024	0.040	0.028	0.034	0.032
% I.A.	99	100	99	100	100	100	96	94	97	90	100	96
<b>South Gladstone</b>												
Annual average:	0.002											
Maximum 24-hour	0.004	0.007	0.013	0.011	0.007	0.010	0.006	0.009	0.010	0.003	0.005	0.004
Maximum 1-hour	0.035	0.041	0.074	0.054	0.033	0.049	0.033	0.041	0.063	0.029	0.036	0.038
% I.A.	99	96	99	99	100	99	99	99	100	99	99	100
<b>Boyne Island</b>												
Annual average:	0.001											
Maximum 24-hour	0.002	0.011	0.003	0.002	0.002	0.005	<0.001	0.001	0.001	0.001	<0.001	0.002
Maximum 1-hour	0.008	0.055	0.019	0.017	0.010	0.020	0.002	0.012	0.005	0.003	0.001	0.020
% I.A.	100	100	100	99	100	100	99	99	100	99	99	98
% I.A. indicates instrument availability. - indicates less than three-fifths of the data are available. n.d. indicates no data are available.												
The Environmental Protection (Air) Policy 2019 air quality objectives for sulfur dioxide are an annual average of 0.020ppm, a 24-hour average of 0.080ppm (not to be exceeded on more than one day per year) and a 1-hour average of 0.200ppm (not to be exceeded on more than one day per year).												

**Carbon monoxide**

Figure 7. Ambient concentrations of carbon monoxide at Boyne Island site. Daily maximum 8-hour average concentrations (ppm), June 2024.

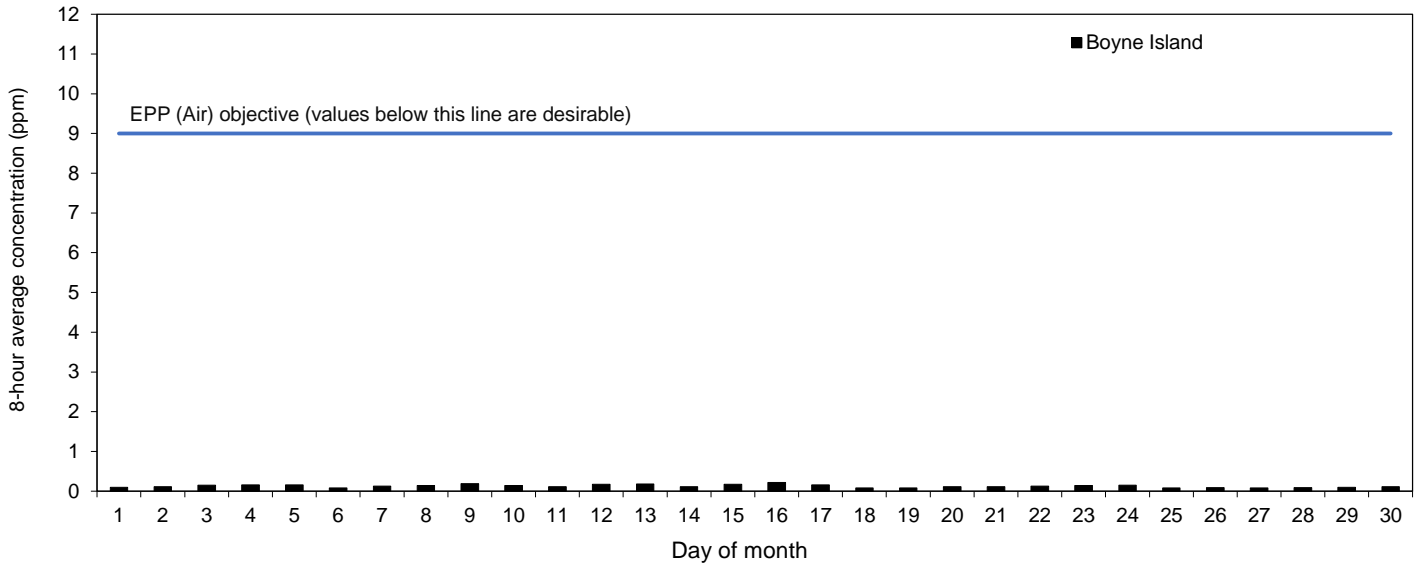


Table 6. Ambient concentrations of carbon monoxide. Monthly maximum 8-hour average concentrations (ppm), July 2023 to June 2024.

Site	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
<b>Gladstone region</b>												
<b>Boyne Island</b>												
Maximum 8-hour	n.d.	n.d.	n.d.	-	0.2	0.67	0.09	0.13	0.1	0.11	0.16	0.22
% I.A.	0	0	0	2	100	100	99	99	100	99	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 Environmental Protection (Air) Policy 2019 air quality objective for carbon monoxide is an 8-hour average of 9ppm (not to be exceeded on more than one day per year).												

**Ozone (photochemical oxidants)**

Figure 8. Ambient concentrations of ozone at Memorial Park site. Daily maximum 4-hour average concentrations (ppm), June 2024.

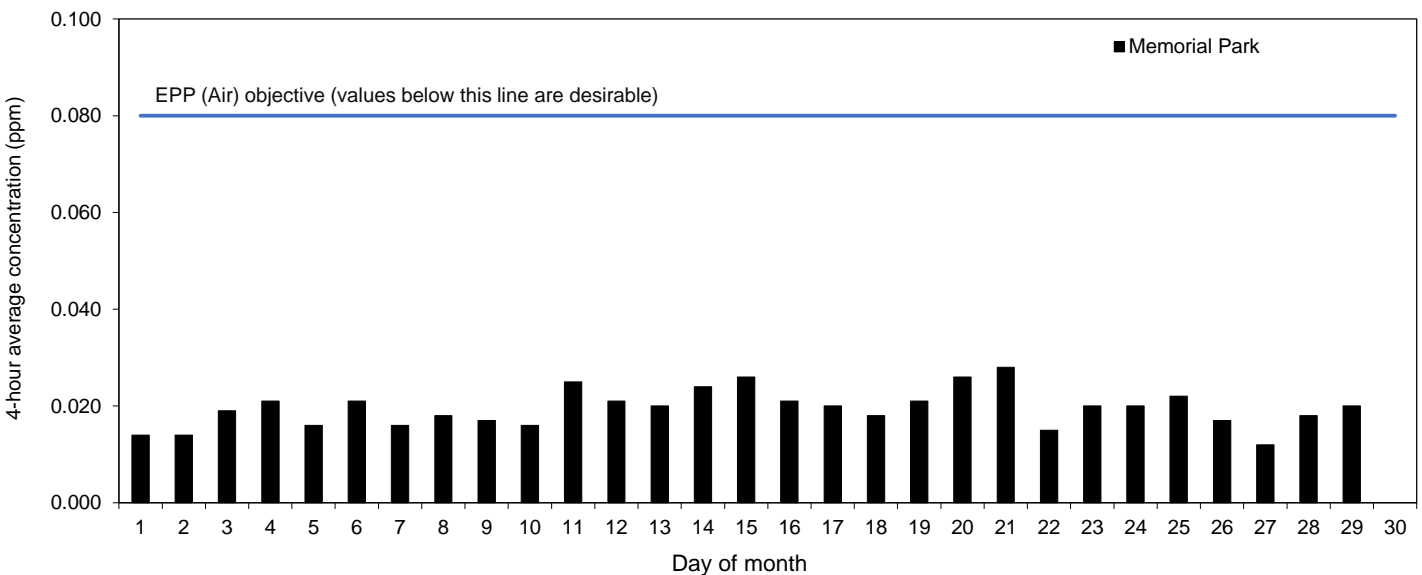


Figure 9. Ambient concentrations of ozone at Memorial Park site. Daily maximum 1-hour average concentrations (ppm), June 2024.

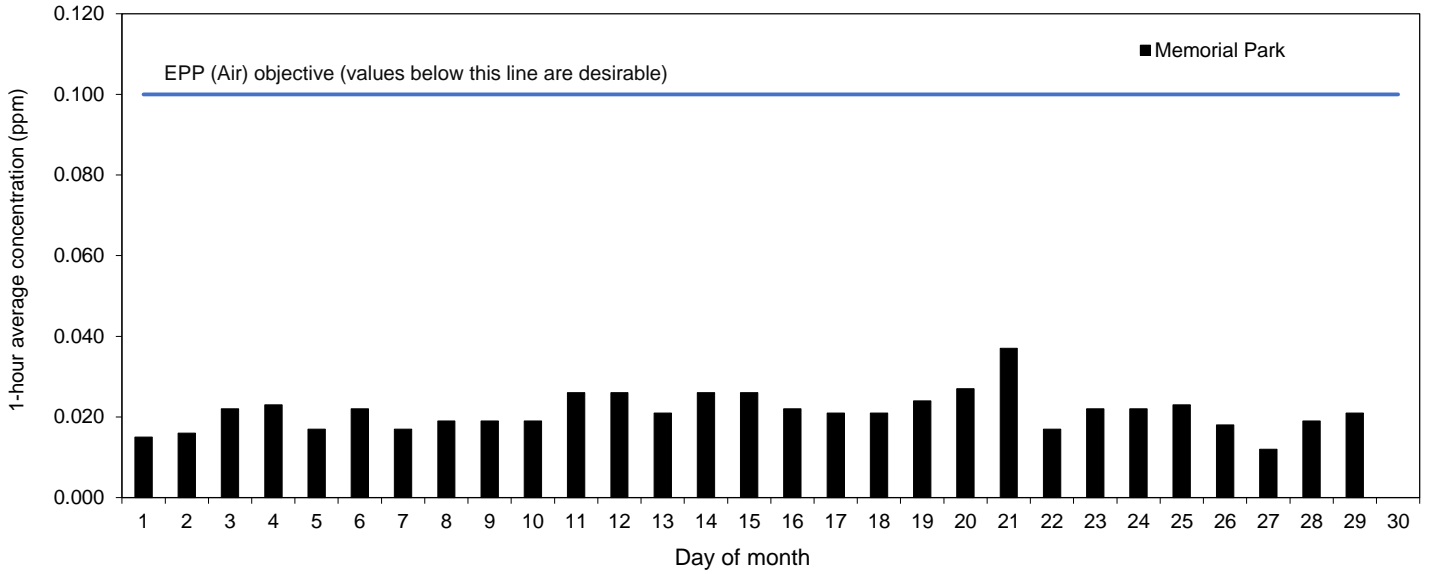


Table 7. Ambient concentrations of ozone. Monthly maximum 4-hour and 1-hour average concentrations (ppm), July 2023 to June 2024.

Site	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
<b>Gladstone region</b>												
<b>Memorial Park</b>												
Maximum 4-hour	0.028	0.030	0.029	0.039	0.024	0.036	0.027	0.019	0.022	0.022	0.020	0.028
Maximum 1-hour	0.030	0.035	0.031	0.045	0.025	0.037	0.030	0.022	0.025	0.023	0.021	0.037
% I.A.	96	96	92	100	99	99	96	94	97	90	100	94

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

The Environmental Protection (Air) Policy 2019 air quality objectives for ozone are a 4-hour average of 0.080ppm (not to be exceeded on more than one day per year) and a 1-hour average of 0.100ppm (not to be exceeded on more than one day per year).

**Benzene**

Figure 10. Ambient concentrations of benzene at Memorial Park site. Daily 24-hour average concentrations (ppb), June 2024.

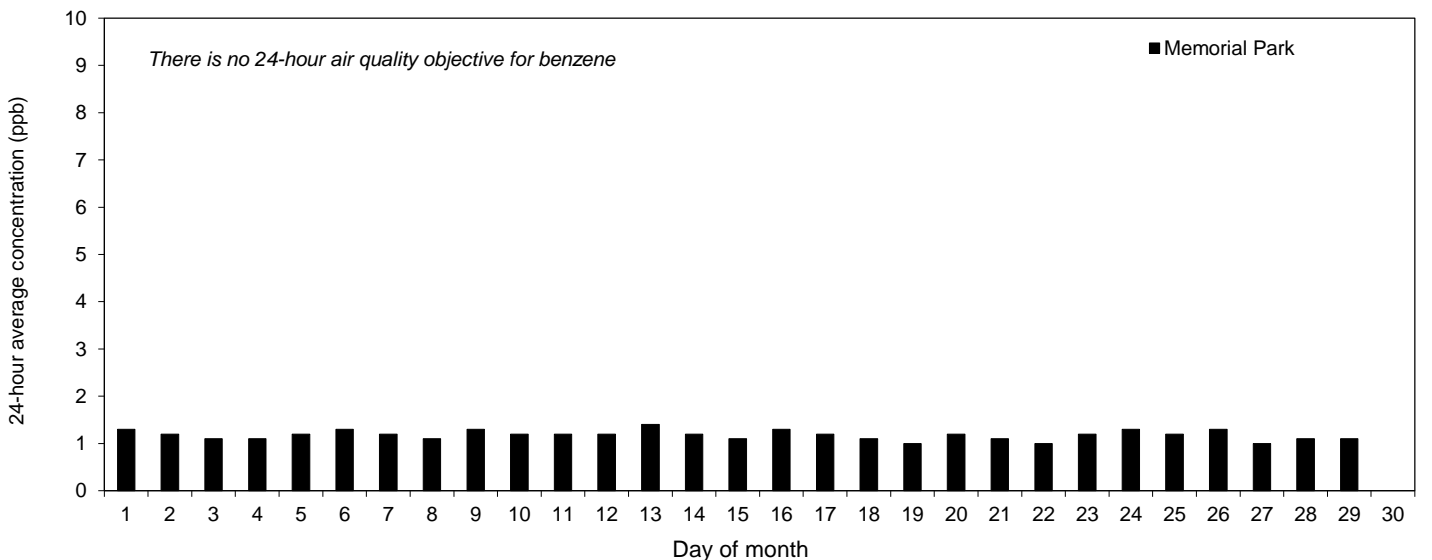


Table 8. Ambient concentrations of benzene. Annual average and monthly maximum 24-hour concentrations (ppb), July 2023 to June 2024.

Site	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
<b>Gladstone region</b>												
<b>Memorial Park</b>												
Annual average:	1.0											
Maximum 24-hour	1.2	1.0	1.1	1.0	1.2	1.3	1.3	1.5	1.3	1.4	1.4	1.4
% I.A.	98	99	98	100	99	98	97	100	98	90	99	96
% I.A. indicates instrument availability. - indicates less than three-fifths of the data are available. n.d. indicates no data are available. The Environmental Protection (Air) Policy 2019 air quality objective for benzene is an annual average of 0.002ppm (2ppb).												

**Toluene**

Figure 11. Ambient concentrations of toluene at Memorial Park site. Daily 24-hour average concentrations (ppb), June 2024.

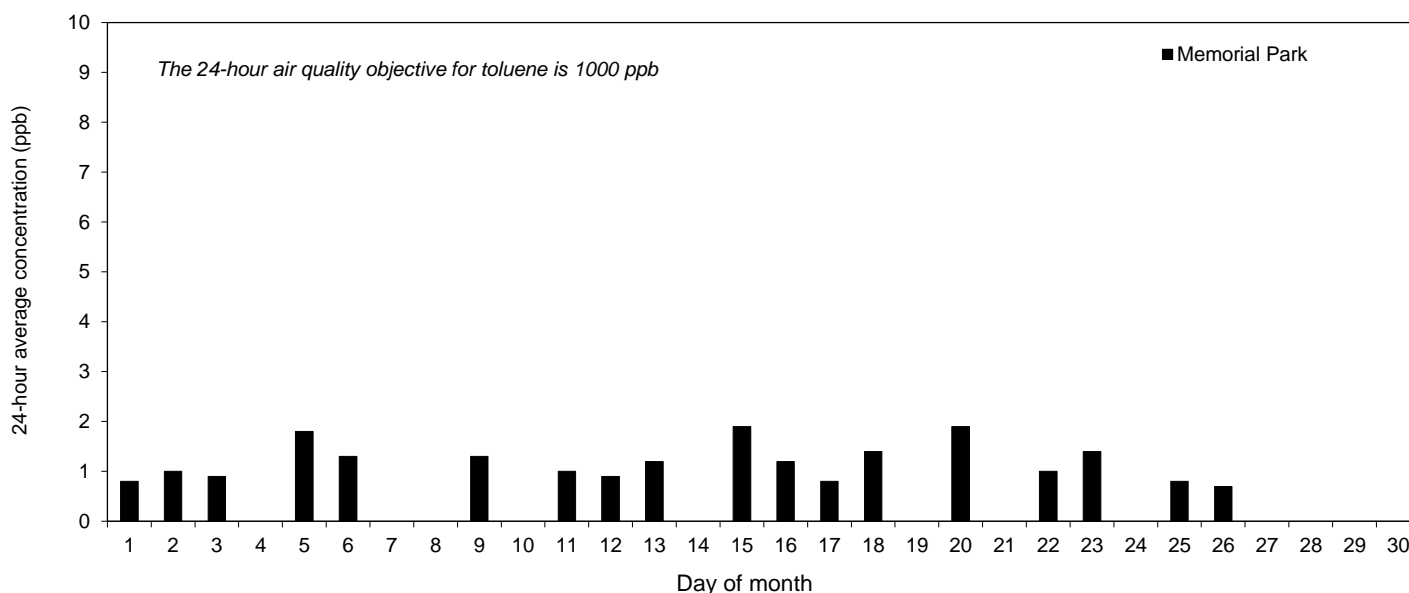


Table 9. Ambient concentrations of toluene. Annual average and monthly maximum 24-hour concentrations (ppb), July 2023 to June 2024.

Site	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
<b>Gladstone region</b>												
<b>Memorial Park</b>												
Annual average:	1.2											
Maximum 24-hour	4.1	2.9	2.4	8.0	1.6	3.3	1.3	1.3	1.3	1.6	1.7	1.9
% I.A.	99	99	98	100	97	99	94	100	86	81	78	72
% I.A. indicates instrument availability. - indicates less than three-fifths of the data are available. n.d. indicates no data are available. The Environmental Protection (Air) Policy 2019 air quality objectives for toluene are an annual average of 0.1ppm (100ppb) and a 24-hour average of 1ppm (1000ppb).												

### Total xylenes

Figure 12. Ambient concentrations of total xylenes at Memorial Park site. Daily 24-hour average concentrations (ppb), June 2024.

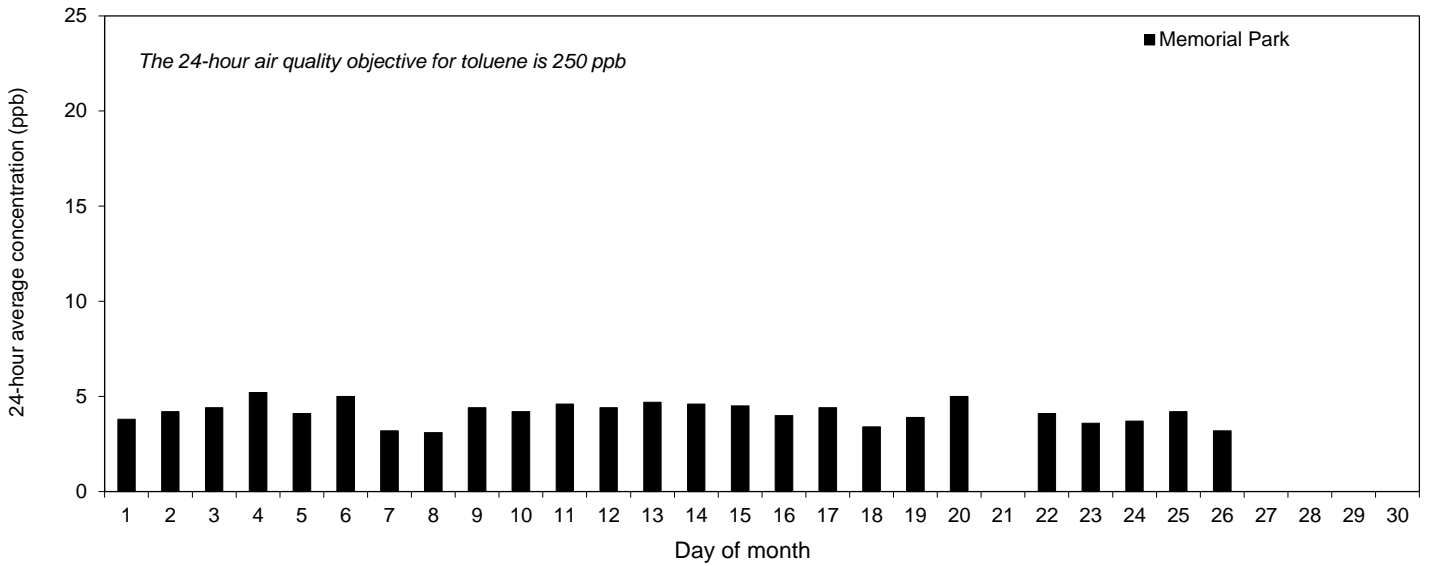


Table 10. Ambient concentrations of total xylenes. Annual average and monthly maximum 24-hour concentrations (ppb), July 2023 to June 2024.

Site	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
<b>Gladstone region</b>												
<b>Memorial Park</b>												
Annual average:	4.6											
Maximum 24-hour	5.8	5.2	6.1	6.3	6.4	6.5	5.7	5.8	5.4	6.0	5.8	5.2
% I.A.	98	98	95	99	97	97	93	100	90	86	96	81
% I.A. indicates instrument availability. - indicates less than three-fifths of the data are available. n.d. indicates no data are available. The Environmental Protection (Air) Policy 2019 air quality objectives for total xylenes are an annual average of 0.2ppm (200ppb) and a 24-hour average of 0.25ppm (250ppb).												

### Formaldehyde

Figure 13. Ambient concentrations of formaldehyde at Memorial Park site. Daily 24-hour average concentrations (ppb), June 2024.

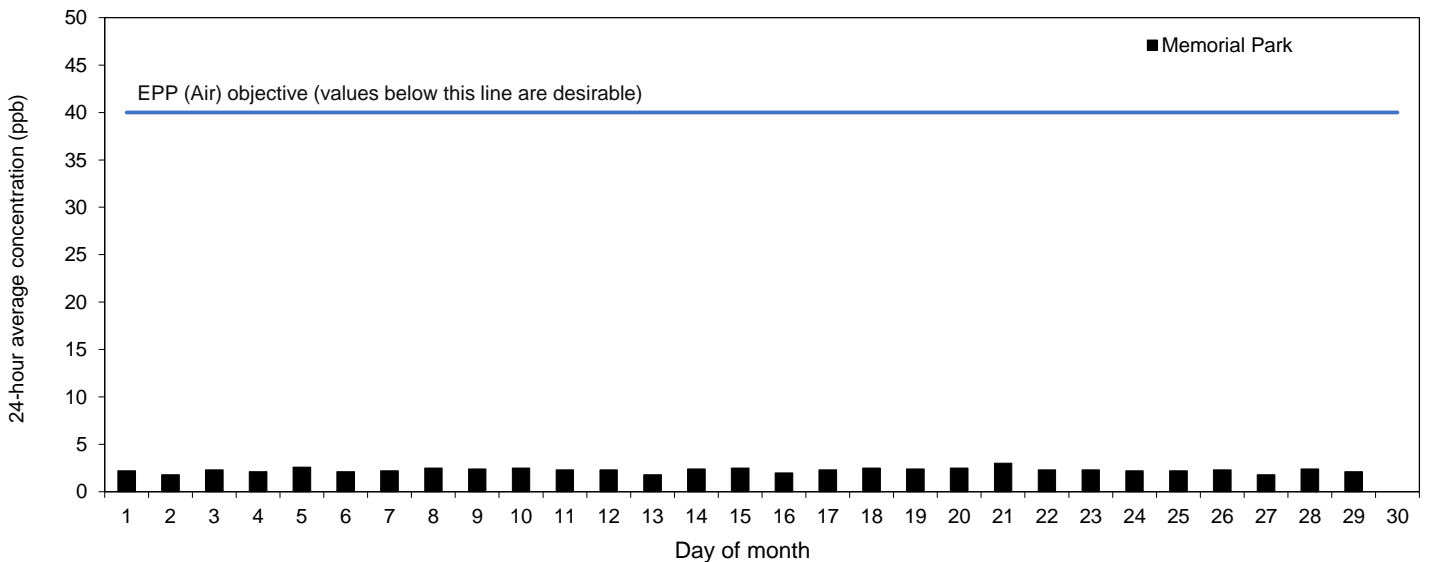


Table 11. Ambient concentrations of formaldehyde. Monthly maximum 24-hour concentrations (ppb), July 2023 to June 2024.

Site	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
<b>Gladstone region</b>												
<b>Memorial Park</b>												
Maximum 24-hour	3.0	2.4	2.5	4.2	2.5	2.5	3.0	2.6	3.0	3.0	3.0	3.0
% I.A.	98	99	97	99	98	97	95	100	94	89	99	95

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

The Environmental Protection (Air) Policy 2019 air quality objective for formaldehyde is a 24-hour average of 0.04ppm (40ppb).

**PM<sub>10</sub>**

Figure 14. Ambient concentrations of PM<sub>10</sub> at Targinie, Fisherman's Landing, Boat Creek and Clinton sites. Daily 24-hour average concentrations (µg/m<sup>3</sup>), June 2024.

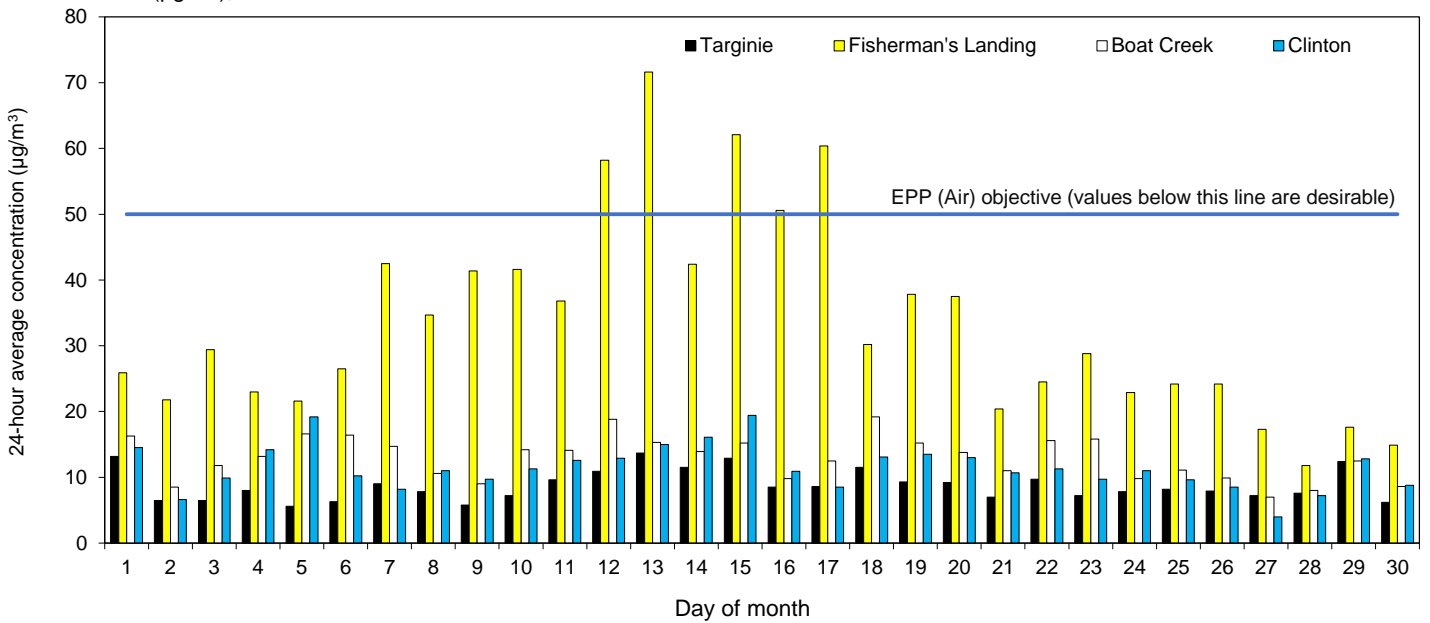


Figure 15. Ambient concentrations of PM<sub>10</sub> at Auckland Point, South Gladstone and Boyne Island sites. Daily 24-hour average concentrations (µg/m<sup>3</sup>), June 2024.

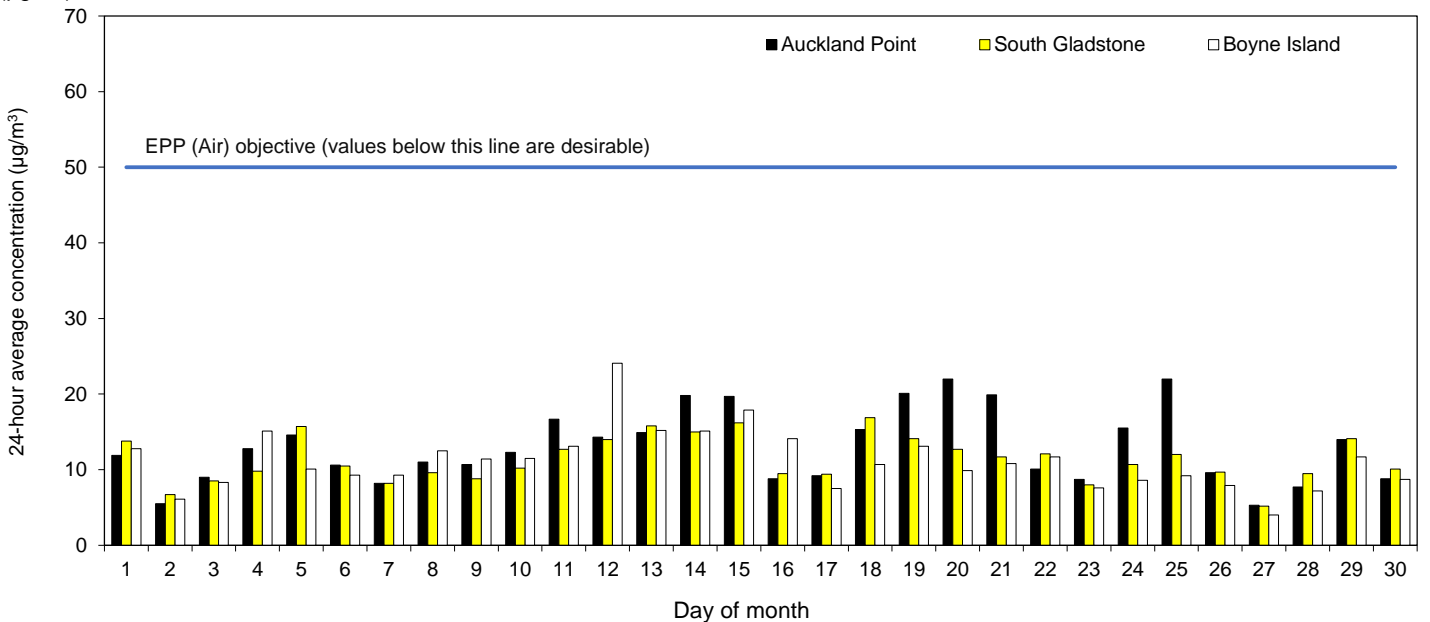


Table 12. Ambient concentrations of PM<sub>10</sub>. Annual average and monthly maximum 24-hour concentrations (µg/m<sup>3</sup>), July 2023 to June 2024.

Site	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
<b>Gladstone region</b>												
<b>Targinie</b>												
Annual average:	13.4											
Maximum 24-hour	31.5	19.0	28.2	100.4	28.5	30.7	22.6	21.0	24.4	19.8	17.5	13.7
% I.A.	100	99	100	100	100	100	100	91	100	100	100	100
<b>Fisherman's Landing</b>												
Annual average:	23.9											
Maximum 24-hour	92.9	-	50.3	114.7	31.6	36.4	39.6	47.2	53.9	39.2	68.3	71.6
% I.A.	84	24	100	100	100	100	100	100	100	100	100	100
<b>Boat Creek</b>												
Annual average:	16.9											
Maximum 24-hour	27.0	23.0	63.9	127.4	32.9	35.8	26.5	25.7	25.5	24.5	22.7	19.2
% I.A.	100	100	100	100	100	100	100	85	100	99	100	99
<b>Clinton</b>												
Annual average:	15.3											
Maximum 24-hour	23.2	19.3	29.3	109.8	32.4	28.8	23.8	20.5	54.9	110.8	22.0	19.4
% I.A.	100	100	100	99	99	71	95	92	77	100	100	100
<b>Auckland Point</b>												
Annual average:	18.7											
Maximum 24-hour	26.8	32.5	47.3	79.7	34.1	53.0	33.7	33.9	32.6	59.7	35.6	22.0
% I.A.	100	100	100	100	100	100	100	99	100	100	100	100
<b>South Gladstone</b>												
Annual average:	17.1											
Maximum 24-hour	27.5	27.3	34.7	64.8	28.0	31.8	36.3	26.2	25.5	27.0	20.0	16.9
% I.A.	96	94	92	98	89	98	99	99	100	100	100	100
<b>Boyne Island</b>												
Annual average:	15.7											
Maximum 24-hour	20.5	115.5	30.9	82.0	33.9	66.6	25.5	21.7	22.0	21.6	19.0	24.1
% I.A.	100	100	100	99	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 Protection (Air) Policy 2019 air quality objectives for PM <sub>10</sub> are an annual average of 25µg/m <sup>3</sup> and a 24-hour average of 50µg/m <sup>3</sup> .												



**PM<sub>2.5</sub>**

Figure 16. Ambient concentrations of PM<sub>2.5</sub> at Targinie, Fisherman's Landing and Boat Creek sites. Daily 24-hour average concentrations (µg/m<sup>3</sup>), June 2024.

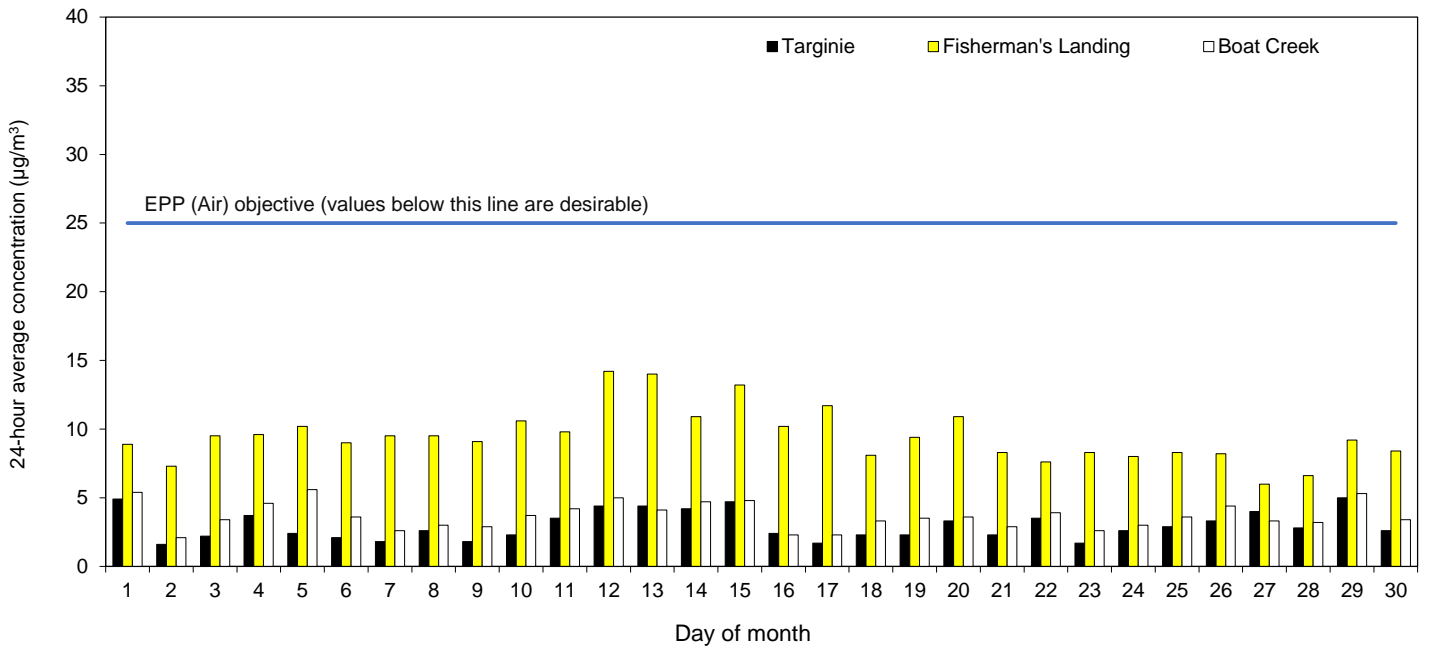


Figure 17. Ambient concentrations of PM<sub>2.5</sub> at Clinton, South Gladstone and Boyne Island sites. Daily 24-hour average concentrations (µg/m<sup>3</sup>), June 2024.

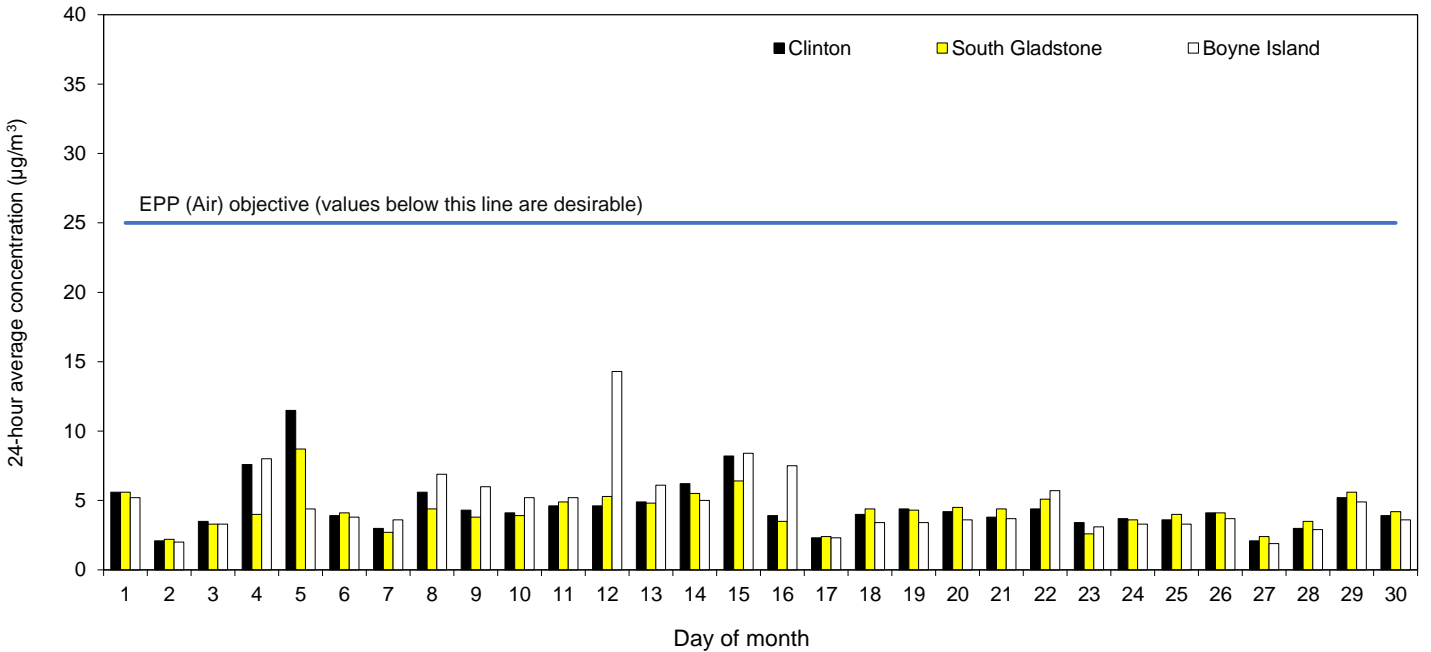


Table 13. Ambient concentrations of PM<sub>2.5</sub>. Annual average and monthly maximum 24-hour concentrations (µg/m<sup>3</sup>), July 2023 to June 2024.

Site	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
<b>Gladstone region</b>												
<b>Targinie</b>												
Annual average:	5.4											
Maximum 24-hour	20.3	10.2	17.3	74.4	14.1	18.3	8.6	7.0	7.5	6.7	6.3	5.0
% I.A.	100	99	100	100	100	100	100	91	100	100	100	100
<b>Fisherman's Landing</b>												
Annual average:	6.0											
Maximum 24-hour	11.3	-	10.8	60.1	10.5	17.1	7.9	7.5	9.2	10.4	13.2	14.2
% I.A.	84	24	100	100	100	100	100	100	100	100	100	100
<b>Boat Creek</b>												
Annual average:	6.1											
Maximum 24-hour	14.0	10.5	45.8	91.8	15.5	19.7	9.6	7.7	8.8	7.5	7.3	5.6
% I.A.	100	100	100	100	100	100	100	85	100	99	100	99
<b>Clinton</b>												
Annual average:	5.8											
Maximum 24-hour	12.1	10.1	17.8	82.4	15.1	15.7	9.7	6.9	7.9	7.9	6.5	11.5
% I.A.	100	100	100	99	99	70	95	92	77	100	100	100
<b>South Gladstone</b>												
Annual average:	6.2											
Maximum 24-hour	10.6	11.3	13.9	78.5	16.5	16.8	10.4	7.8	8.8	7.4	7.2	8.7
% I.A.	99	96	99	100	100	100	99	99	100	100	100	100
<b>Boyne Island</b>												
Annual average:	6.5											
Maximum 24-hour	12.9	83.5	14.4	61.1	15.6	52.4	10.4	7.1	8.4	6.8	6.8	14.3
% I.A.	100	100	100	99	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 Protection (Air) Policy 2019 air quality objectives for PM <sub>2.5</sub> are an annual average of 8µg/m <sup>3</sup> and a 24-hour average of 25µg/m <sup>3</sup> .												

### Visibility-reducing particles

Figure 18. Ambient concentrations of visibility-reducing particle levels at Targinie, Fisherman's Landing and Boat Creek sites. Daily maximum 1-hour average light scattering coefficient ( $B_{sp}$ ) values ( $Mm^{-1}$ ), June 2024.

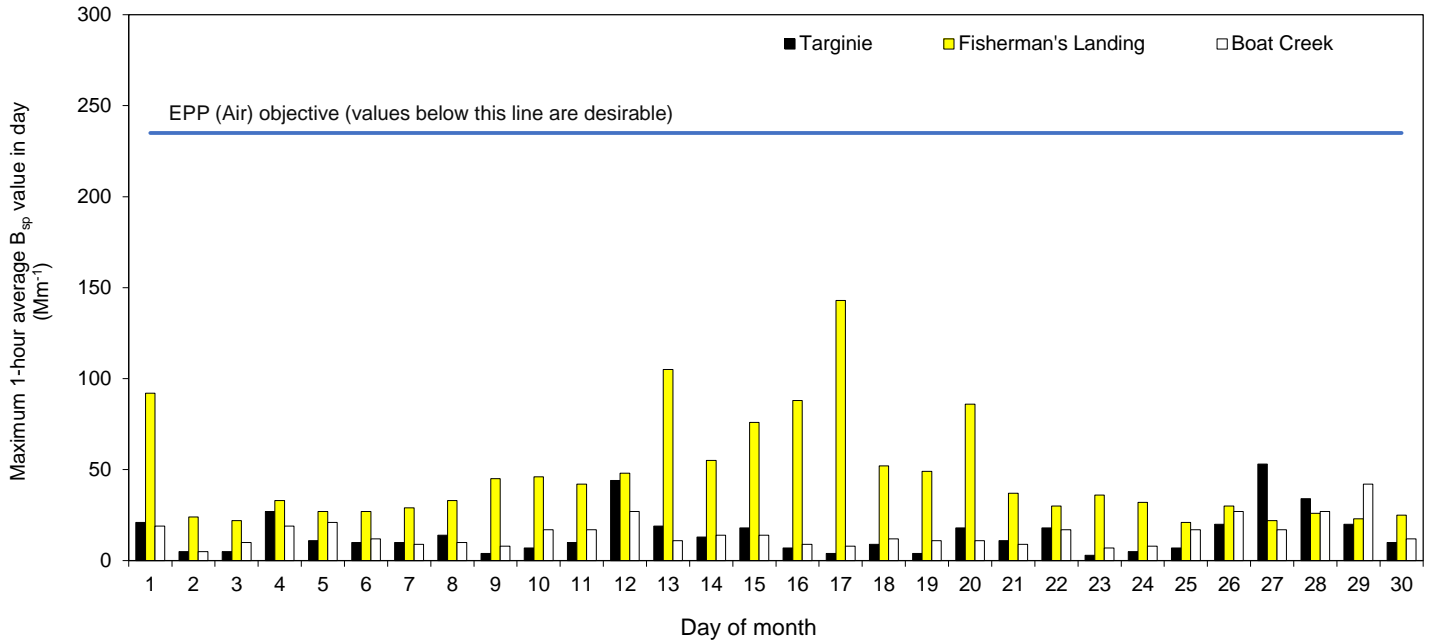


Figure 19. Ambient concentrations of visibility-reducing particle levels at Clinton, South Gladstone and Boyne Island sites. Daily maximum 1-hour average light scattering coefficient ( $B_{sp}$ ) values ( $Mm^{-1}$ ), June 2024.

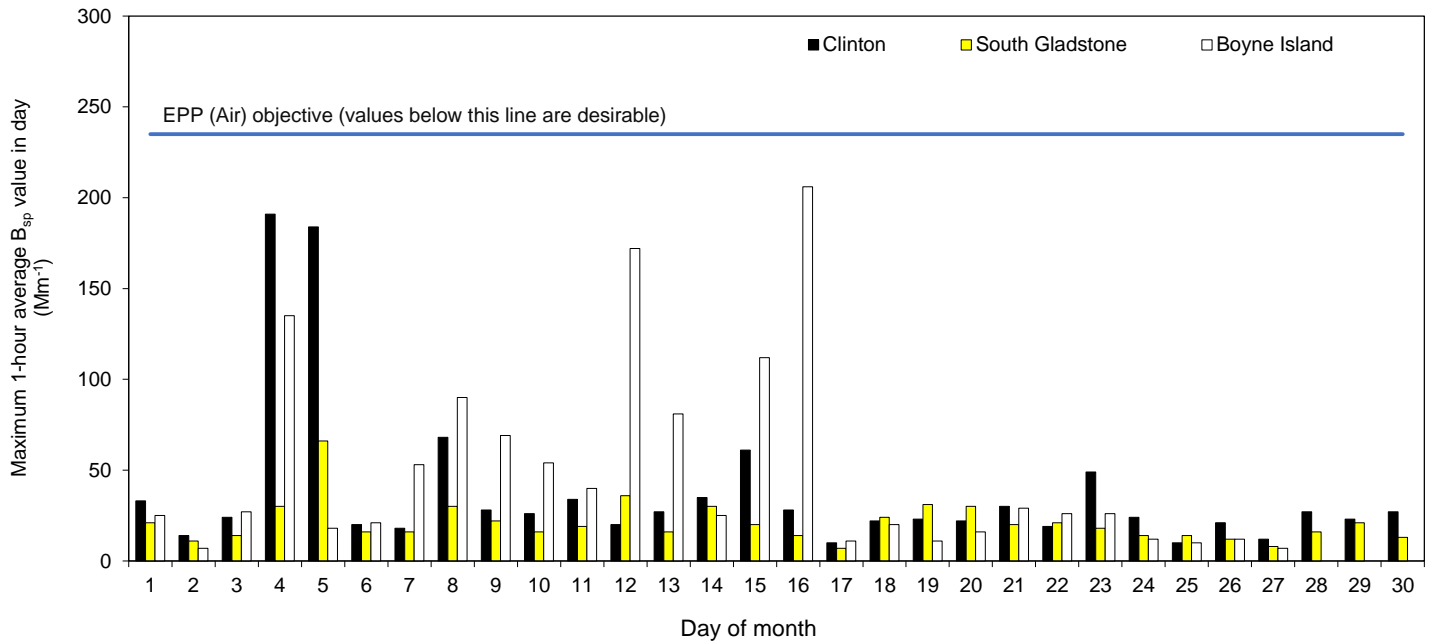


Table 14. Ambient visibility-reducing particle levels. Monthly maximum 1-hour light scattering coefficient ( $B_{sp}$ ) values ( $Mm^{-1}$ ), July 2023 to June 2024.

Site	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
<b>Gladstone region</b>												
<b>Targinie</b>												
Maximum 1-hour	562	61	190	1274	63	134	69	31	52	31	35	53
% I.A.	100	99	100	100	100	99	100	96	100	100	100	100
<b>Fisherman's Landing</b>												
Maximum 1-hour	254	72	139	1290	66	237	54	35	52	85	137	143
% I.A.	100	100	100	100	100	100	100	100	100	100	100	100
<b>Boat Creek</b>												
Maximum 1-hour	234	67	1296	1254	61	215	78	33	35	27	28	42
% I.A.	100	100	100	100	100	99	100	85	100	99	100	99
<b>Clinton</b>												
Maximum 1-hour	131	40	142	1055	60	337	34	42	86	85	120	191
% I.A.	100	99	100	99	100	100	99	100	100	100	99	99
<b>South Gladstone</b>												
Maximum 1-hour	65	54	94	946	74	284	51	27	29	51	277	66
% I.A.	99	96	99	89	100	99	100	99	100	100	100	100
<b>Boyne Island</b>												
Maximum 1-hour	119	921	117	683	86	1020	41	27	52	40	32	206
% I.A.	100	100	100	99	100	100	100	100	100	99	99	92
% I.A. indicates instrument availability. - indicates less than three-fifths of the data are available. n.d. indicates no data are available. The Environmental Protection (Air) Policy 2019 air quality objective for visibility-reducing particles is 20km visibility. This equates to light scattering coefficient values of $235Mm^{-1}$ or less.												

### Measured ambient concentrations - Mackay, Moranbah, Emerald, Blackwater and Bluff

#### PM<sub>10</sub>

Figure 20. Ambient concentrations of PM<sub>10</sub> at West Mackay, Moranbah (East) and Moranbah (West) sites. Daily 24-hour average concentrations ( $\mu g/m^3$ ), June 2024.

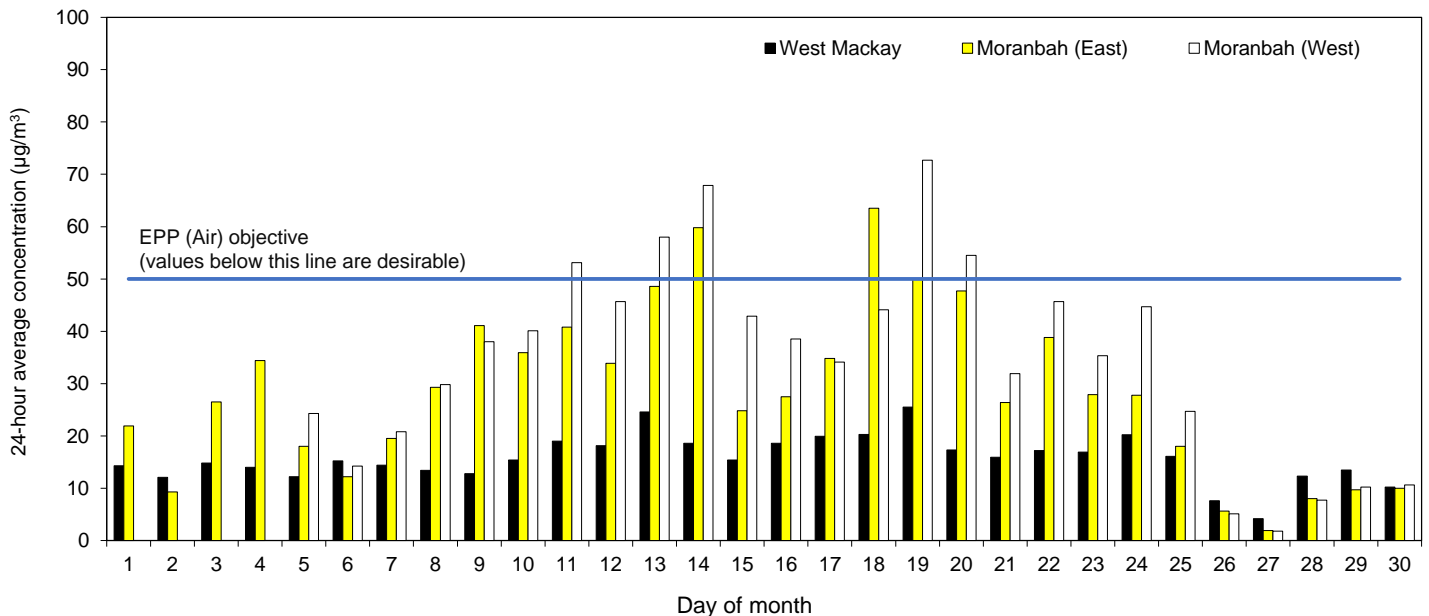


Figure 21. Ambient concentrations of PM<sub>10</sub> at Emerald, Blackwater and Bluff sites. Daily 24-hour average concentrations (µg/m<sup>3</sup>), June 2024.

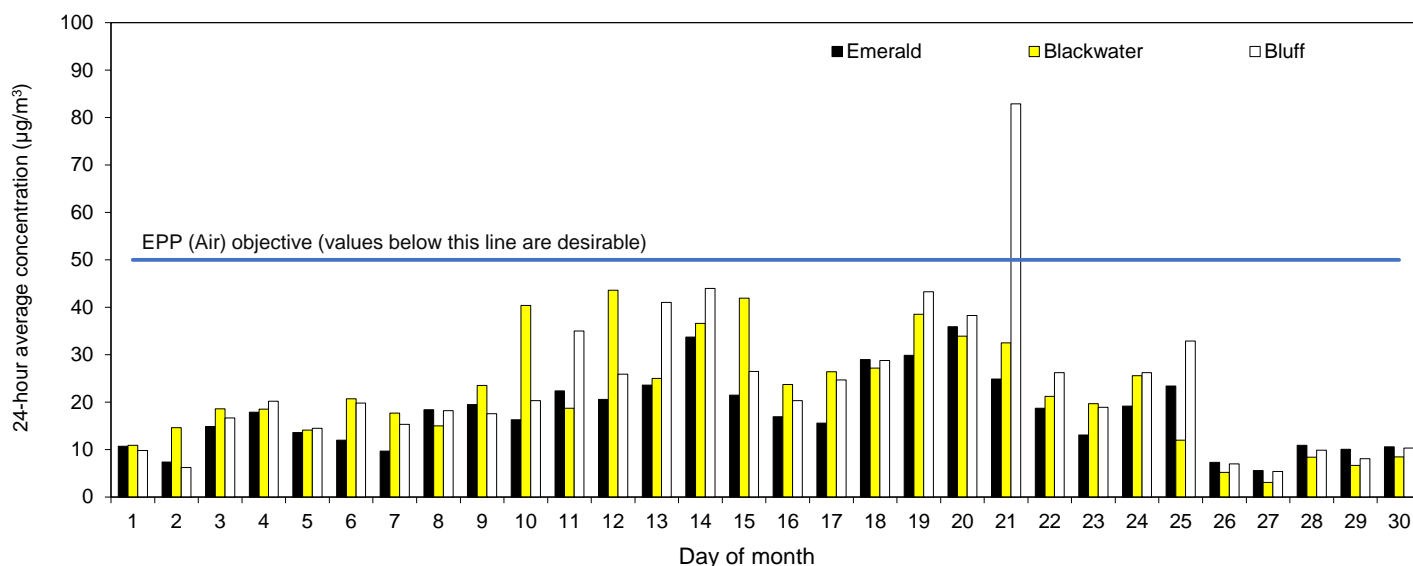


Table 15. Ambient concentrations of PM<sub>10</sub>. Annual average and monthly maximum 24-hour and 1-hour average concentrations (µg/m<sup>3</sup>), July 2023 to June 2024.

Site	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
<b>Mackay</b>												
<b>West Mackay</b>												
Annual average:	17.7											
Maximum 24-hour	38.4	24.3	33.0	48.6	31.0	34.0	35.6	24.0	27.5	23.8	21.8	25.5
% I.A.	92	98	99	100	99	100	98	100	100	100	100	100
<b>Inland Central Queensland</b>												
<b>Moranbah (East)</b>												
Annual average:	22.5											
Maximum 24-hour	40.0	56.1	45.8	96.2	36.8	49.6	26.2	22.3	24.7	36.4	36.5	63.5
% I.A.	100	100	100	100	100	100	100	100	100	100	100	100
<b>Moranbah (West)</b>												
Annual average:	28.0											
Maximum 24-hour	-	38.0	65.0	121.1	65.6	71.9	32.8	29.8	40.0	43.3	47.4	72.7
% I.A.	16	69	85	99	100	100	97	100	100	100	78	88
<b>Emerald</b>												
Annual average:	19.0											
Maximum 24-hour	24.1	30.8	62.3	75.7	40.0	36.1	26.2	18.9	23.0	17.4	25.5	35.9
% I.A.	100	100	100	100	100	100	100	65	93	100	100	100
<b>Blackwater</b>												
Annual average:	18.3											
Maximum 24-hour	30.6	41.8	91.9	42.6	42.6	36.4	28.4	25.0	36.7	29.5	21.1	43.6
% I.A.	100	100	98	87	98	98	100	100	100	99	100	100
<b>Bluff</b>												
Annual average:	25.6											
Maximum 24-hour	49.5	51.0	100.8	75.5	39.7	44.2	33.1	34.4	68.0	35.0	30.7	82.9
% I.A.	100	99	99	98	90	88	84	99	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 Protection (Air) Policy 2019 air quality objectives for PM <sub>10</sub> are an annual average of 25µg/m <sup>3</sup> and a 24-hour average of 50µg/m <sup>3</sup> .												

**PM<sub>2.5</sub>**

Figure 22. Ambient concentrations of PM<sub>2.5</sub> at West Mackay, Moranbah (East) and Moranbah (West) sites. Daily 24-hour average concentrations (µg/m<sup>3</sup>), June 2024.

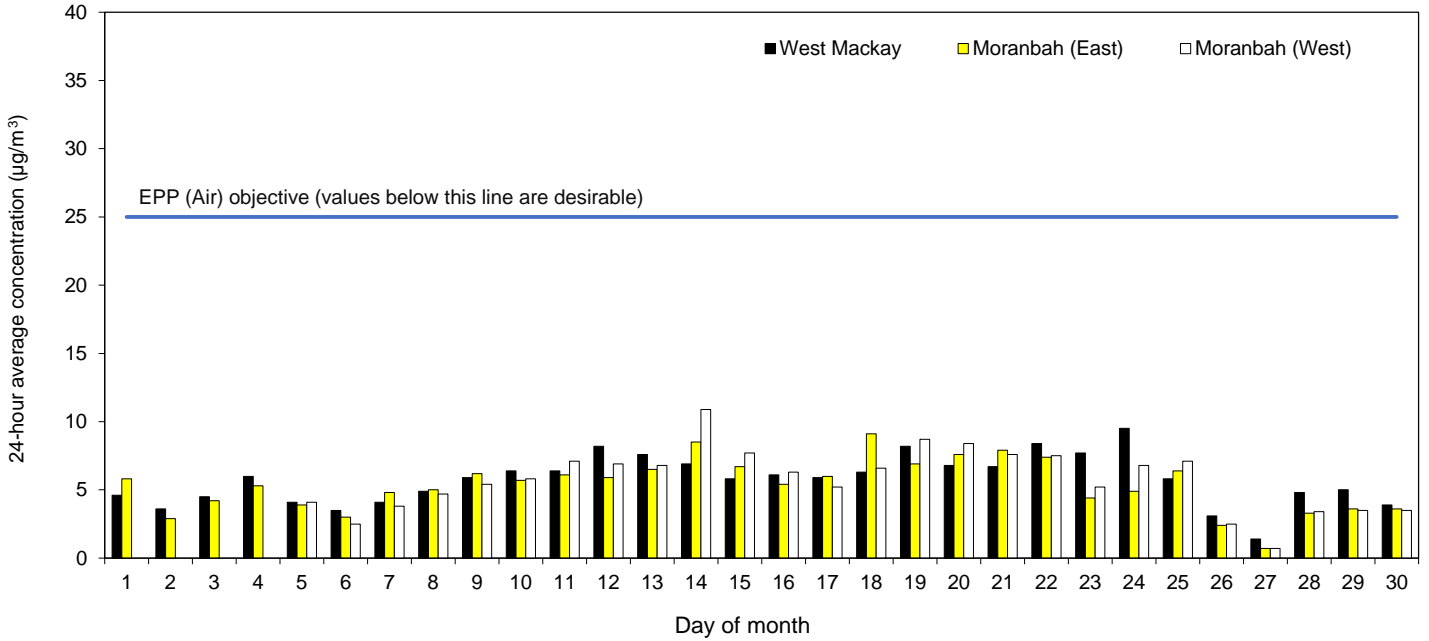


Figure 23. Ambient concentrations of PM<sub>2.5</sub> at Emerald and Blackwater sites. Daily 24-hour average concentrations (µg/m<sup>3</sup>), June 2024.

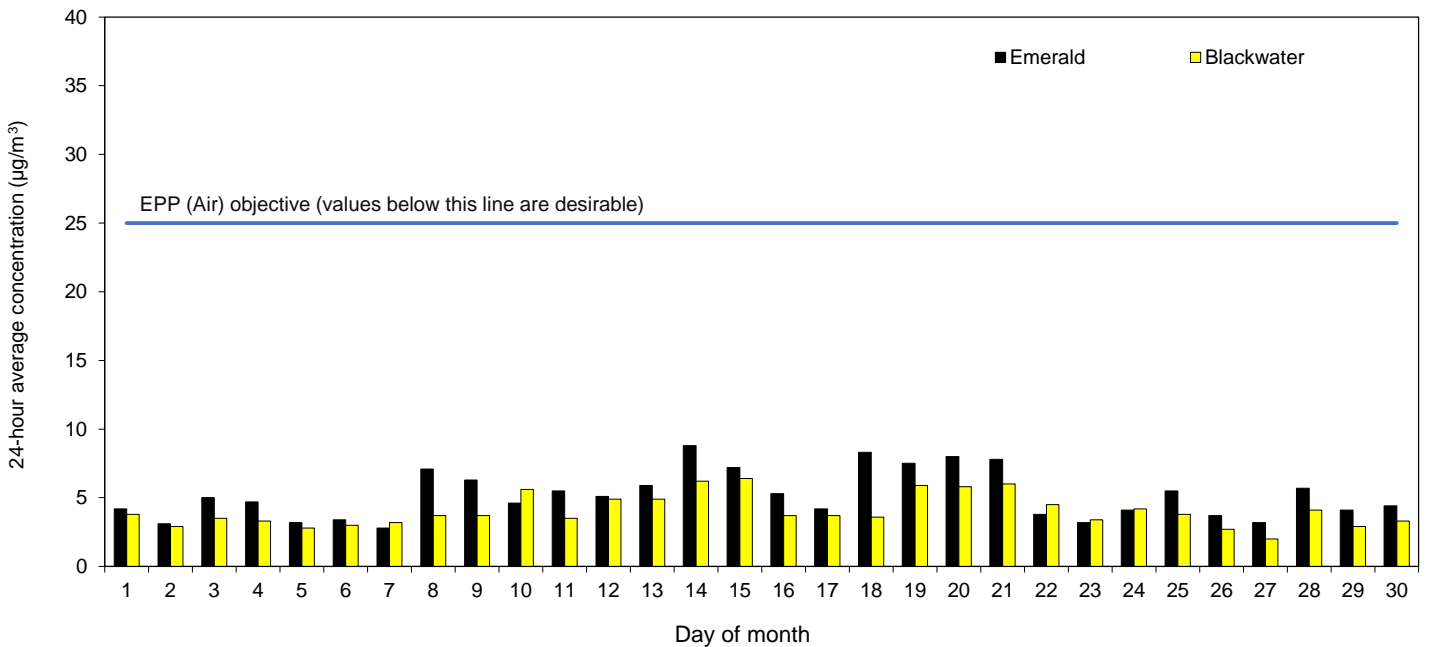


Table 16. Ambient concentrations of PM<sub>2.5</sub>. Annual average and monthly maximum 24-hour concentrations (µg/m<sup>3</sup>), July 2023 to June 2024.

Site	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
<b>Mackay</b>												
<b>West Mackay</b>												
Annual average:	6.3											
Maximum 24-hour	20.6	9.5	13.2	13.7	18.0	13.6	10.6	7.9	9.6	8.2	7.3	9.5
% I.A.	92	98	99	100	99	100	98	100	100	100	100	100
<b>Inland Central Queensland</b>												
<b>Moranbah (East)</b>												
Annual average:	6.4											
Maximum 24-hour	7.9	10.4	18.7	44.2	17.3	30.9	8.3	6.6	6.8	6.8	5.8	9.1
% I.A.	100	100	100	100	100	100	100	100	100	100	100	100
<b>Moranbah (West)</b>												
Annual average:	7.0											
Maximum 24-hour	-	9.3	20.7	53.6	20.6	33.8	9.0	7.2	7.8	6.8	6.7	10.9
% I.A.	16	69	85	99	100	100	97	100	100	100	78	88
<b>Emerald</b>												
Annual average:	6.9											
Maximum 24-hour	9.3	13.5	33.4	45.3	21.4	17.8	10.8	6.7	11.2	5.7	5.7	8.8
% I.A.	100	100	100	100	100	100	100	65	93	100	100	100
<b>Blackwater</b>												
Annual average:	6.4											
Maximum 24-hour	15.5	9.2	62.6	20.2	19.0	21.4	13.9	7.9	16.6	5.9	5.3	6.4
% I.A.	100	100	98	87	98	98	100	100	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 Environmental Protection (Air) Policy 2019 air quality objectives for PM <sub>2.5</sub> are an annual average of 8µg/m <sup>3</sup> and a 24-hour average of 25µg/m <sup>3</sup> .												

### Visibility-reducing particles

Figure 24. Ambient concentrations of visibility-reducing particle levels at West Mackay site. Daily maximum 1-hour average light scattering coefficient (B<sub>sp</sub>) values (Mm<sup>-1</sup>), June 2024.

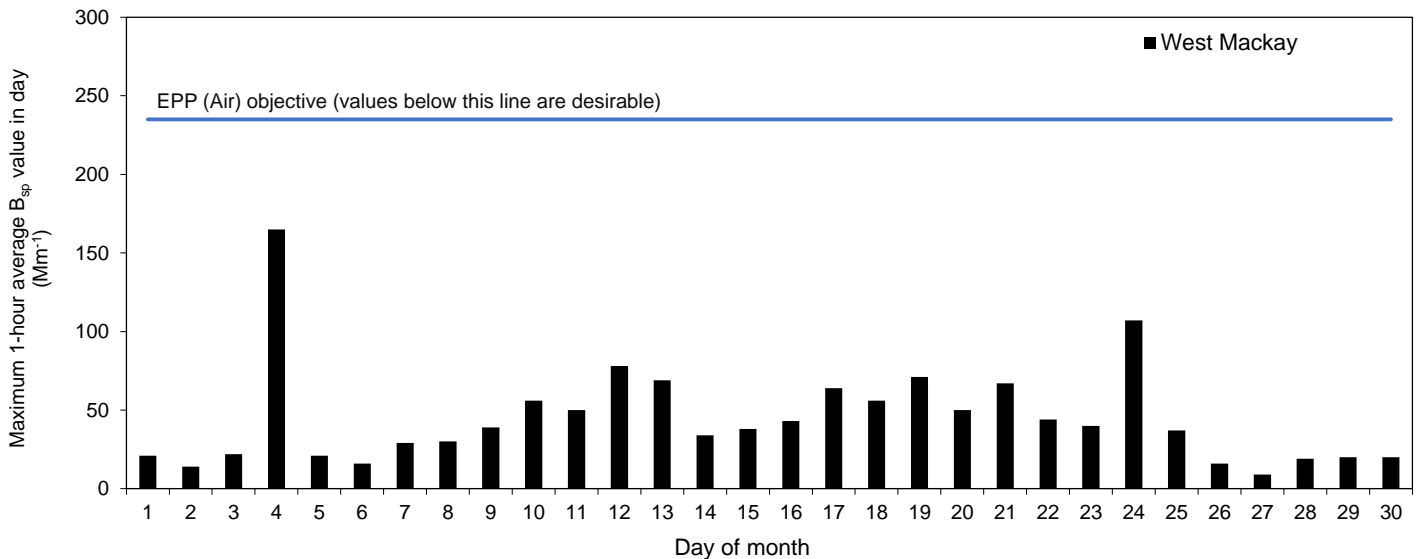


Table 17. Ambient visibility-reducing particle levels. Monthly maximum 1-hour light scattering coefficient ( $B_{sp}$ ) values ( $Mm^{-1}$ ), July 2023 to June 2024.

Site	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
<b>Mackay</b>												
<b>West Mackay</b>												
Maximum 1-hour	184	115	180	116	300	292	46	93	54	37	53	165
% I.A.	92	98	99	90	68	99	98	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 Protection (Air) Policy 2019 air quality objective for visibility-reducing particles is 20km visibility. This equates to light scattering coefficient values of  $235Mm^{-1}$  or less.

**Data availability**

When required, Table 18 summarises the reasons for data availability below the minimum criteria for reporting at Central Queensland monitoring sites.

Table 18. Reasons for low data availability at Central Queensland ambient air monitoring sites during June 2024.

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@des.qld.gov.au

Figure 25. Central Queensland ambient air quality monitoring station locations.

