



Acknowledgement of Country

We acknowledge the traditional custodians of the Country on which we live and meet, and pay our respects to their elders past and present.

We appreciate their traditional knowledge, care of, and spiritual connection to the air, land and sea.

We thank them for their ongoing stewardship and ways of seeing, thinking and being as part of Country.

Alongside Aboriginal nations, we strive to protect and grow the health of our beautiful state.

Artwork by Ngarrindjeri artist Jordan Lovegrove.



AIR QUALITY MONITORING AND DUST SOURCE ATTRIBUTION ON THE LEFEVRE PENINSULA, SOUTH AUSTRALIA

Date: 31/08/2026

Presenter: Mohammad Asif Iqbal

Position: Senior Scientific Officer (EPA SA)

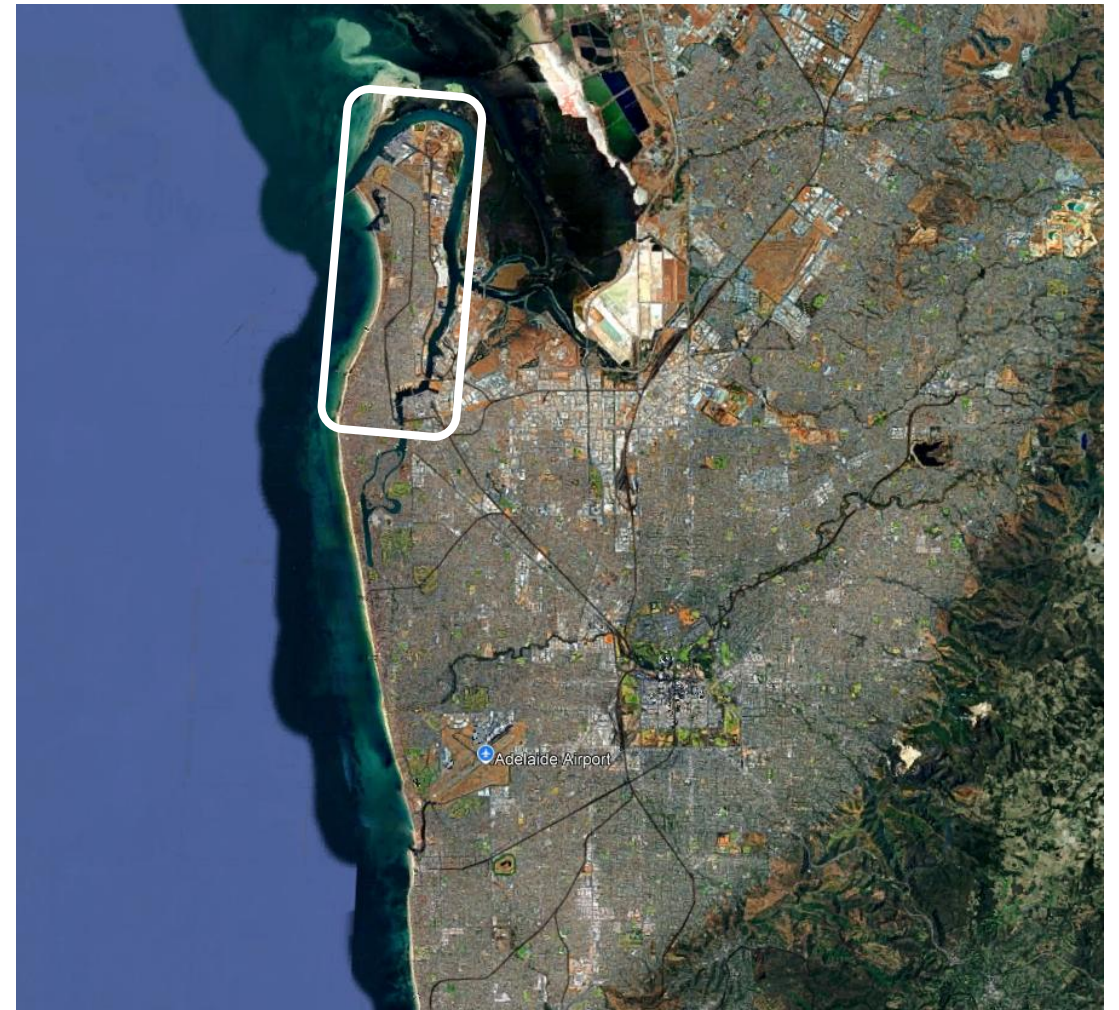


LeFevre Peninsula

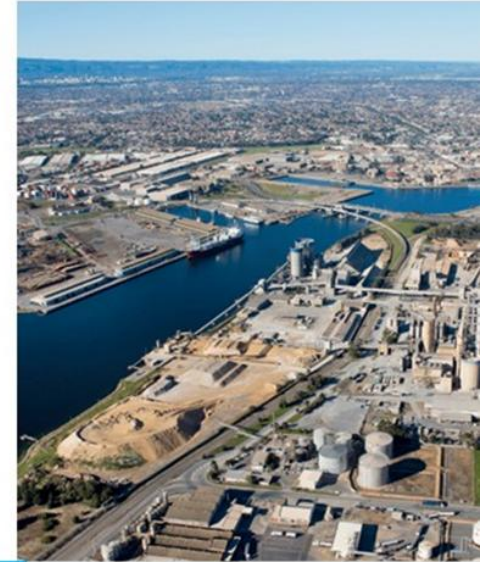
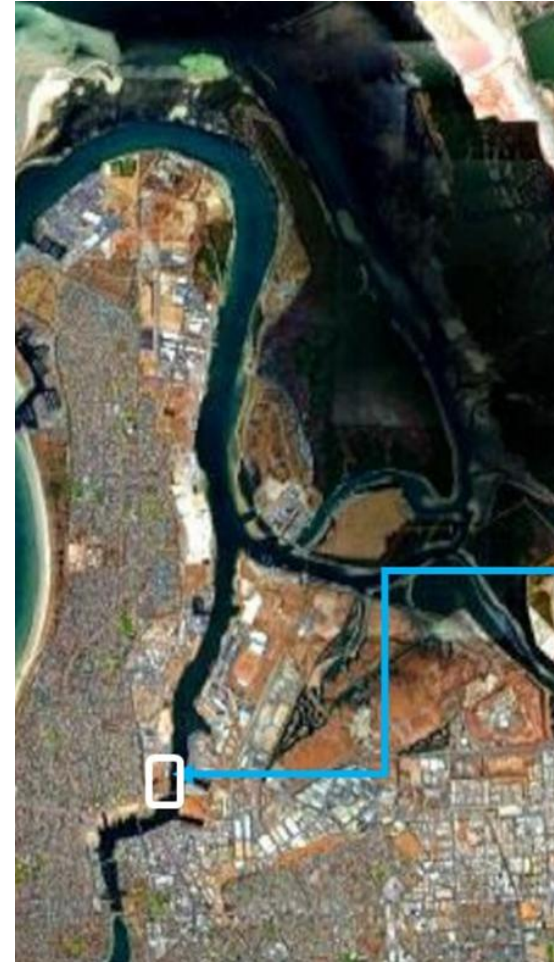
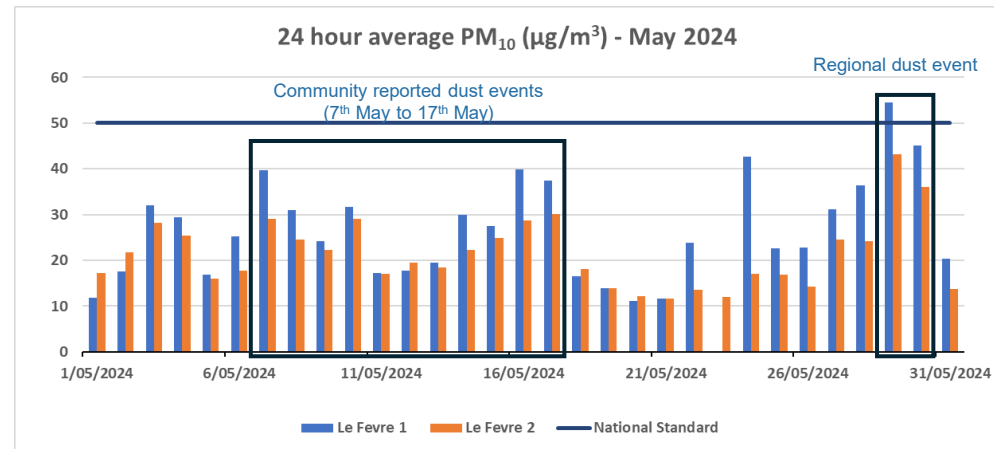
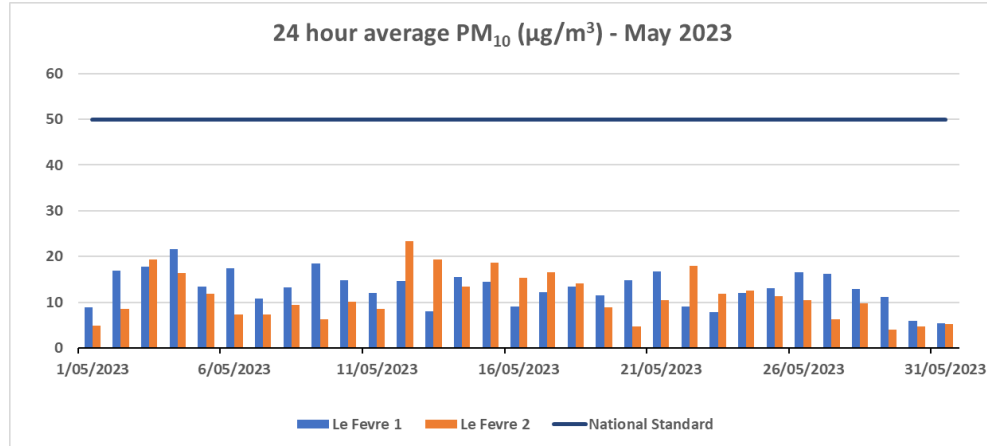
Location: Lefevre Peninsula is a coastal peninsula in metropolitan Adelaide, located approximately 15 km northwest of the Adelaide CBD and surrounded by Gulf St Vincent, the Port River, and Barker Inlet.

Population and communities: The peninsula includes several established suburbs, including Semaphore, Exeter, Largs Bay, Peterhead, Birkenhead, and Osborne, supporting a population of approximately 30,000–35,000 residents.

Industrial activity: Lefevre Peninsula is a major industrial and maritime precinct, hosting significant activities including port operations, shipbuilding, manufacturing, cement production, energy infrastructure, and bulk material handling facilities.



May 2024 Dust Events in LeFevre Peninsula



ADBRI

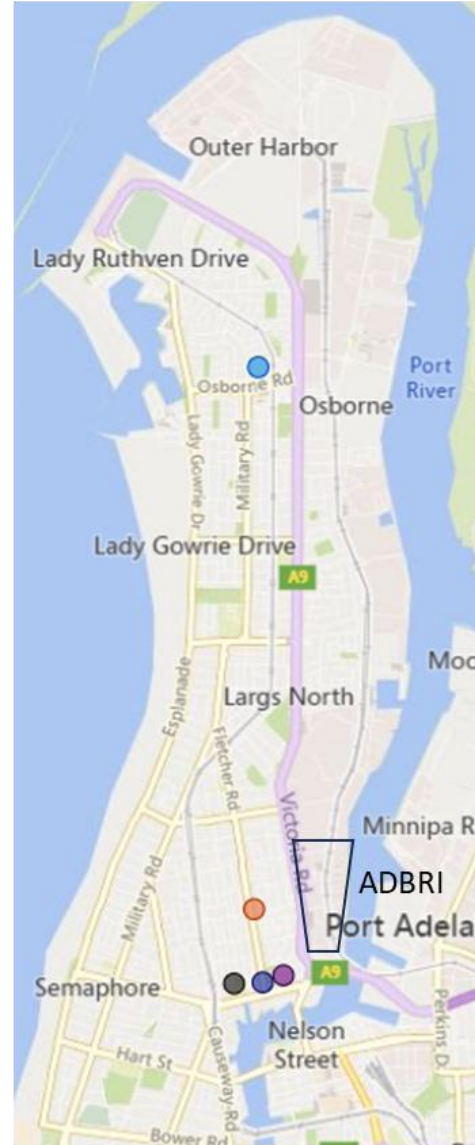
- Major cement manufacturing facility
- Potential air quality impacts
- Mixed industrial-residential setting

Campaign Monitoring

Birkenhead Mobile Station



Peterhead Mobile Station

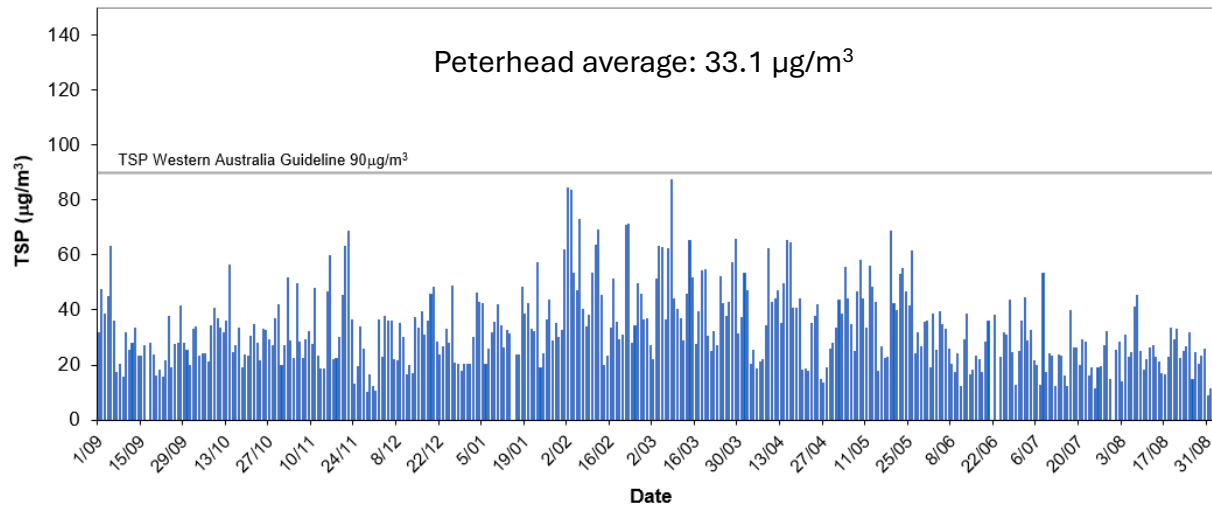
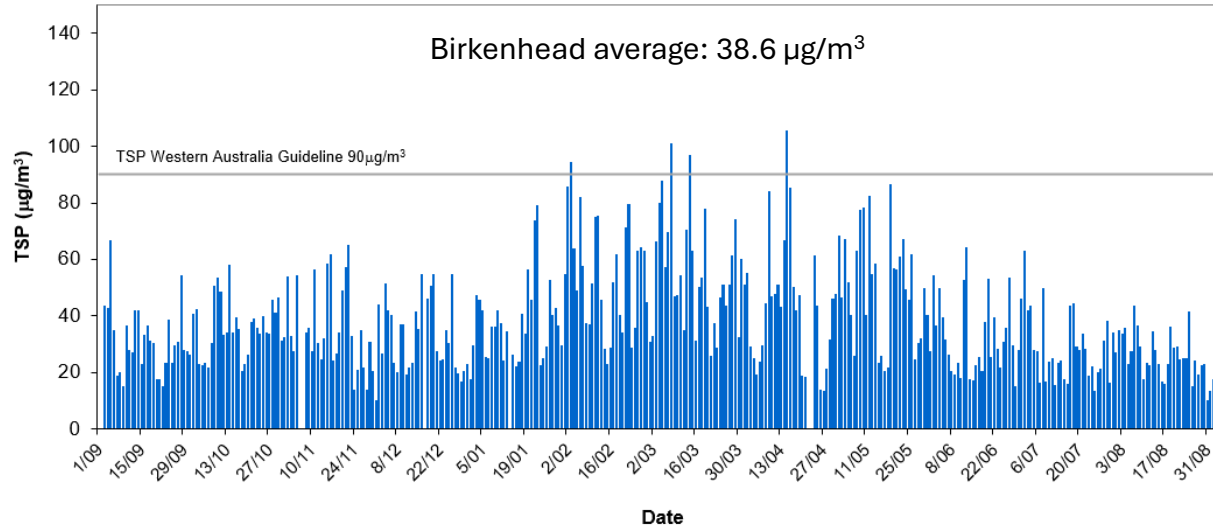


Year-long campaign: September 2024 to August 2025

Site Name	Parameter				
	TSP	PM ₁₀	TSP Composition	PM ₁₀ Composition	Dust Deposition
Birkenhead	TEOM	BAM			
Peterhead	TEOM	BAM	High Vol	High Vol	
Walker St					Deposition Gauge

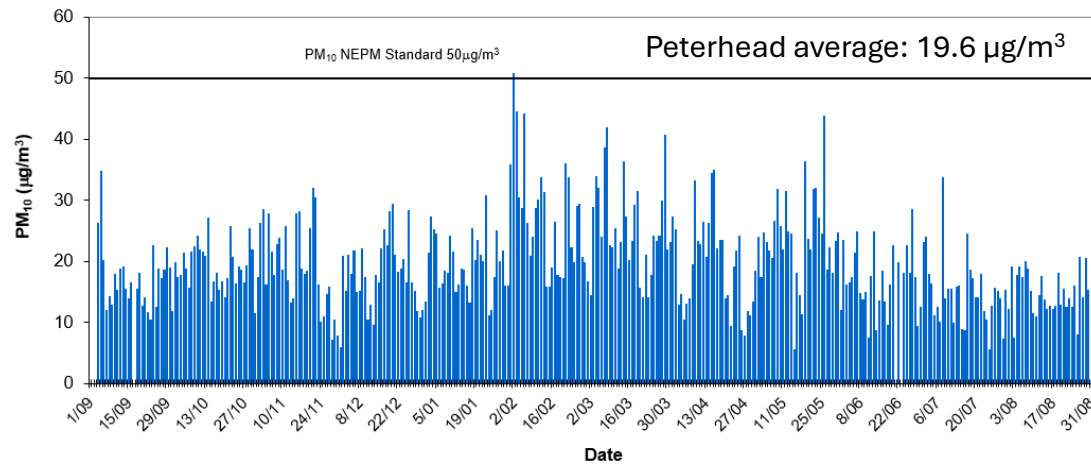
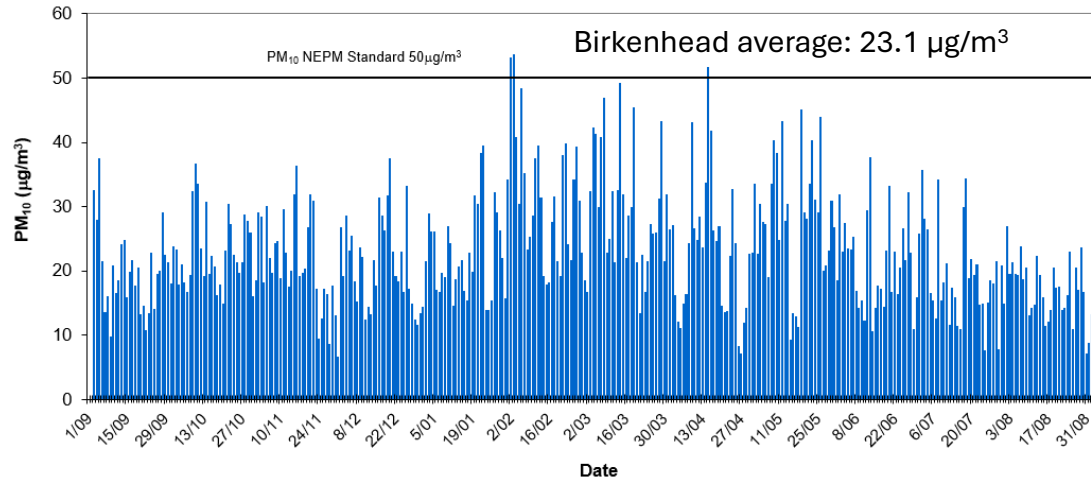
● Le Fevre 1 ● Le Fevre 2 ● Birkenhead ● Peterhead ● Walker St DDG

TSP Concentrations



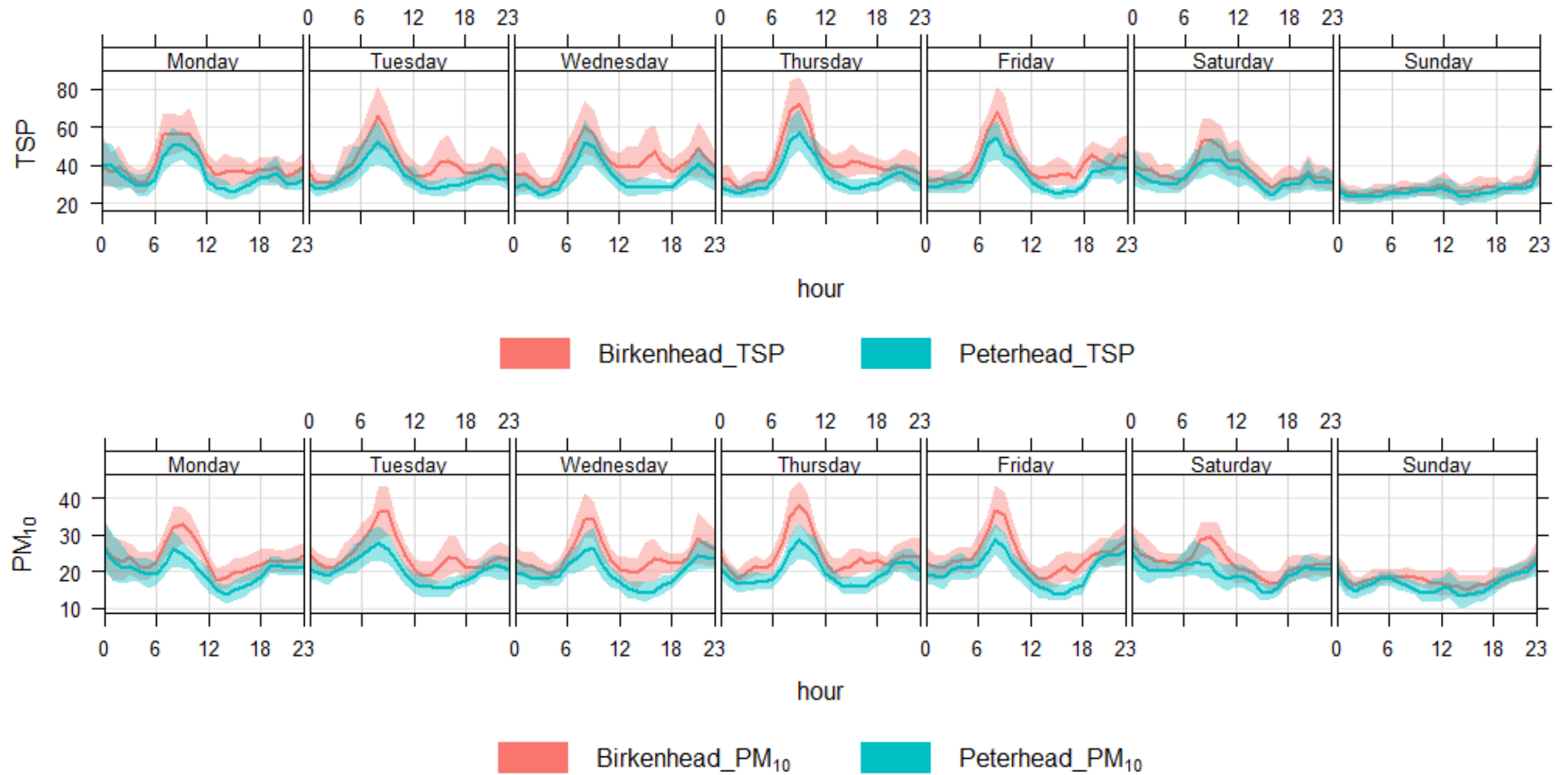
Date	Monitoring Stations	Concentration	Potential Source
3 February 2025	Birkenhead	94.4 $\mu\text{g}/\text{m}^3$	Smoke from bushfires in Victoria. Elevated concentrations were seen across the EPA monitoring network.
8 March 2025	Birkenhead	101.0 $\mu\text{g}/\text{m}^3$	Wind predominantly from the direction of the Adbri Birkenhead facility.
14 March 2025	Birkenhead	96.9 $\mu\text{g}/\text{m}^3$	Wind from the direction of the Adbri Birkenhead facility and other local dust sources.
15 April 2025	Birkenhead	105.6 $\mu\text{g}/\text{m}^3$	Wind predominantly from the direction of the Adbri Birkenhead facility.

PM₁₀ Concentrations

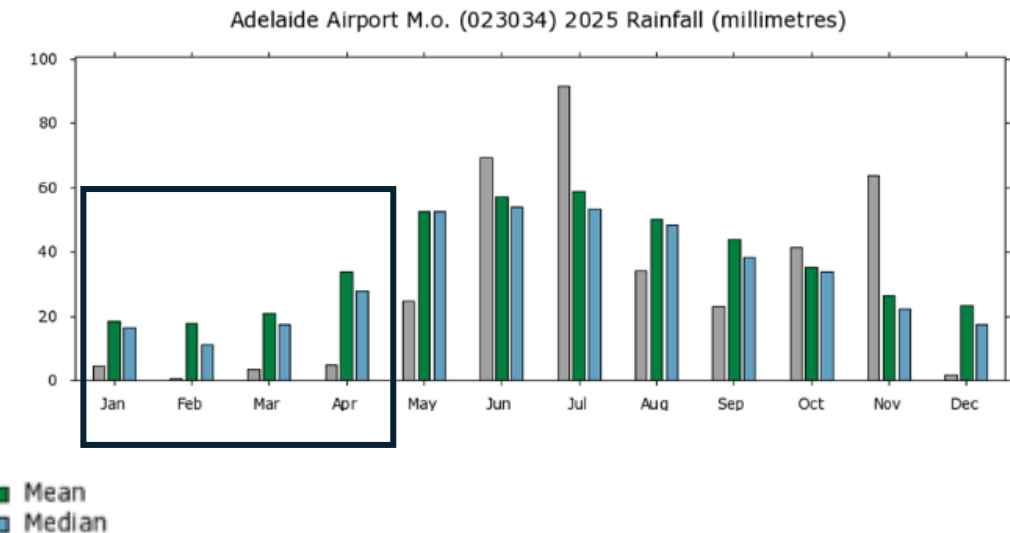
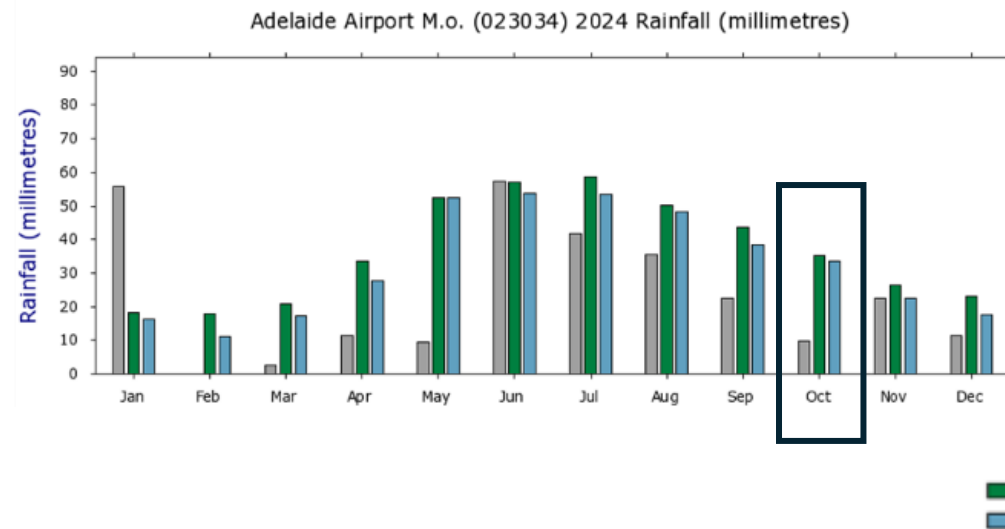
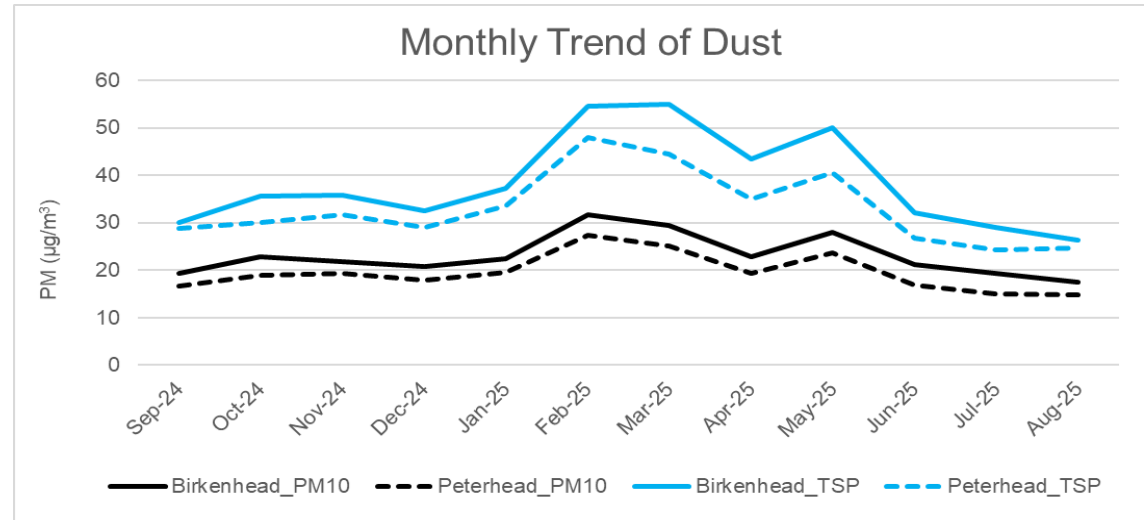


Date	Monitoring Stations	Concentration	Potential Source
2 February 2025	Peterhead, Birkenhead, Le Fevre 1	50.7 µg/m ³ , 53.2 µg/m ³ , 56.2 µg/m ³	Smoke from bushfires in Victoria. Elevated concentrations were seen across the EPA monitoring network.
3 February 2025	Birkenhead, Le Fevre 1	53.6 µg/m ³ , 51.0 µg/m ³	Smoke from bushfires in Victoria. Elevated concentrations were seen across the EPA monitoring network.
15 April 2025	Birkenhead	51.7 µg/m ³	Wind from the direction of the Adbri Birkenhead facility.

Diurnal Trend of Dust

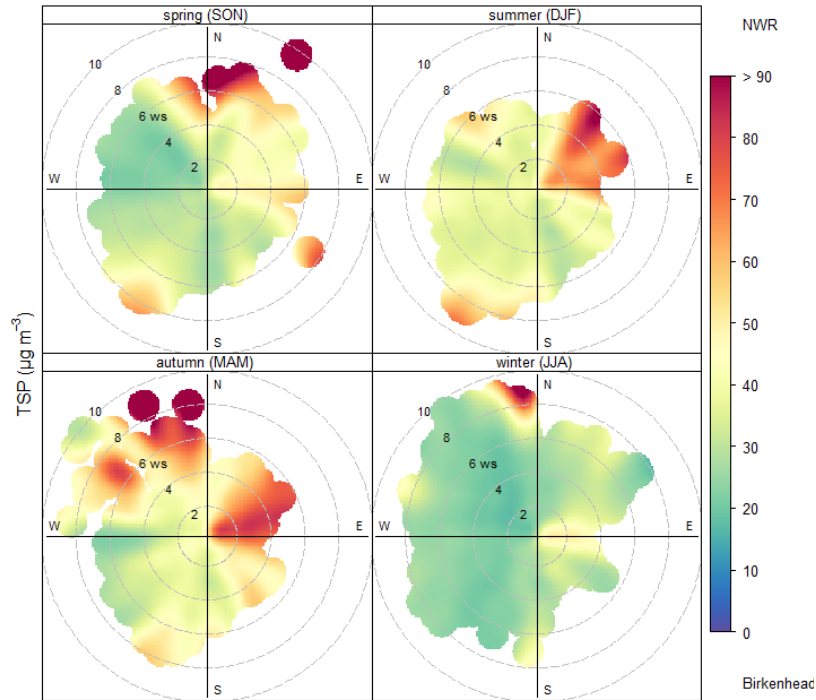


Seasonal Trend of Dust & Rainfall

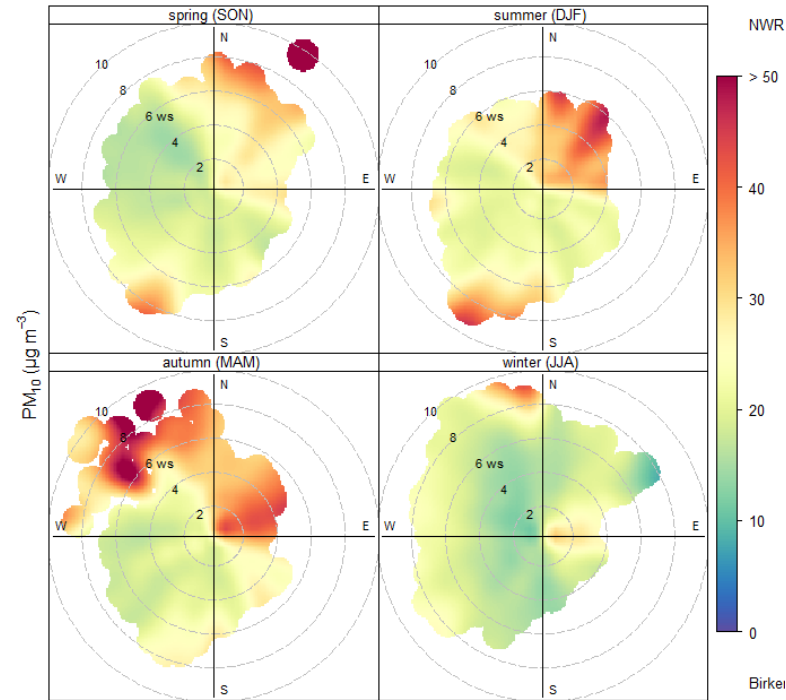


Seasonal Polar Plots: Birkenhead

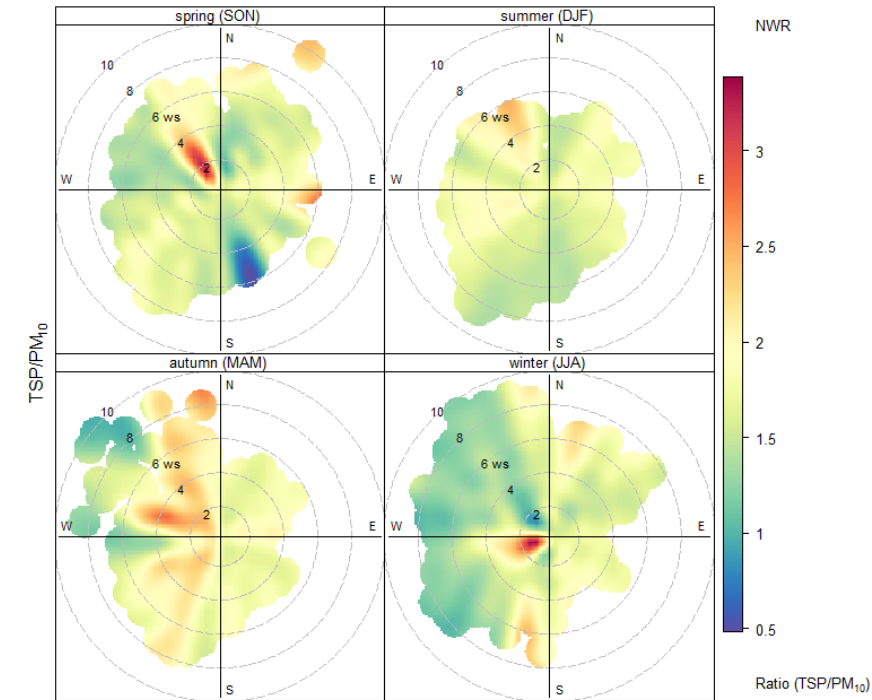
TSP



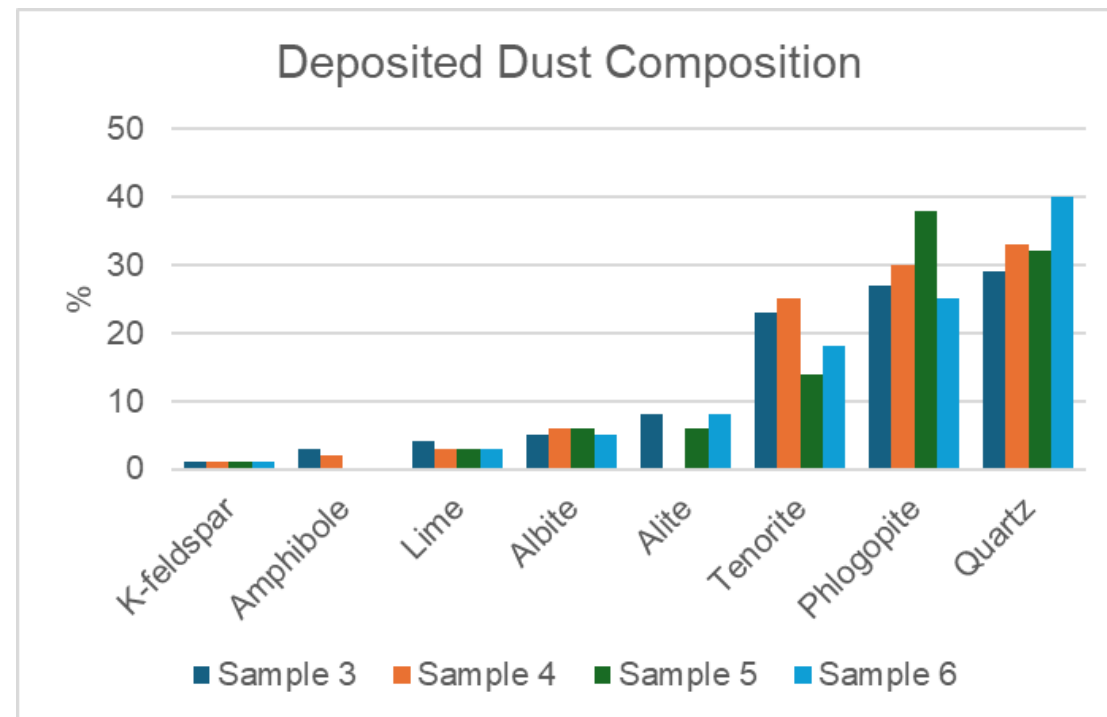
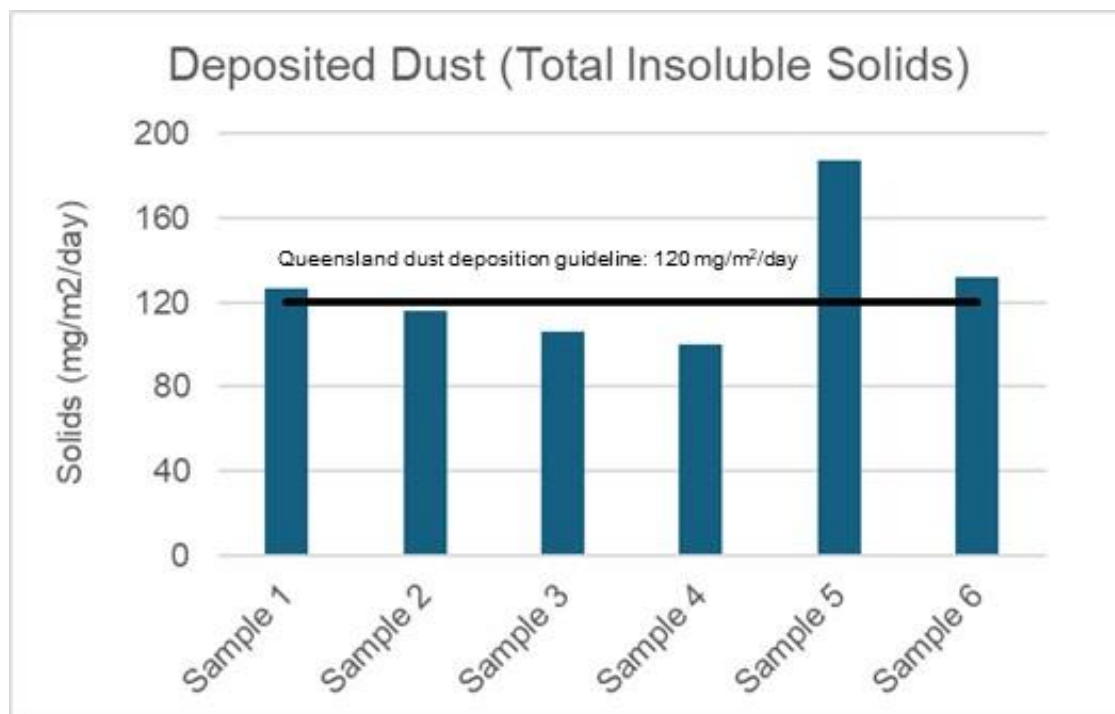
PM₁₀



Ratio (TSP/PM₁₀)



Dust Deposition Gauge



Sample 1: 11/09/24–11/10/24 (30 days)

Sample 2: 11/10/24–11/11/24 (30 days)

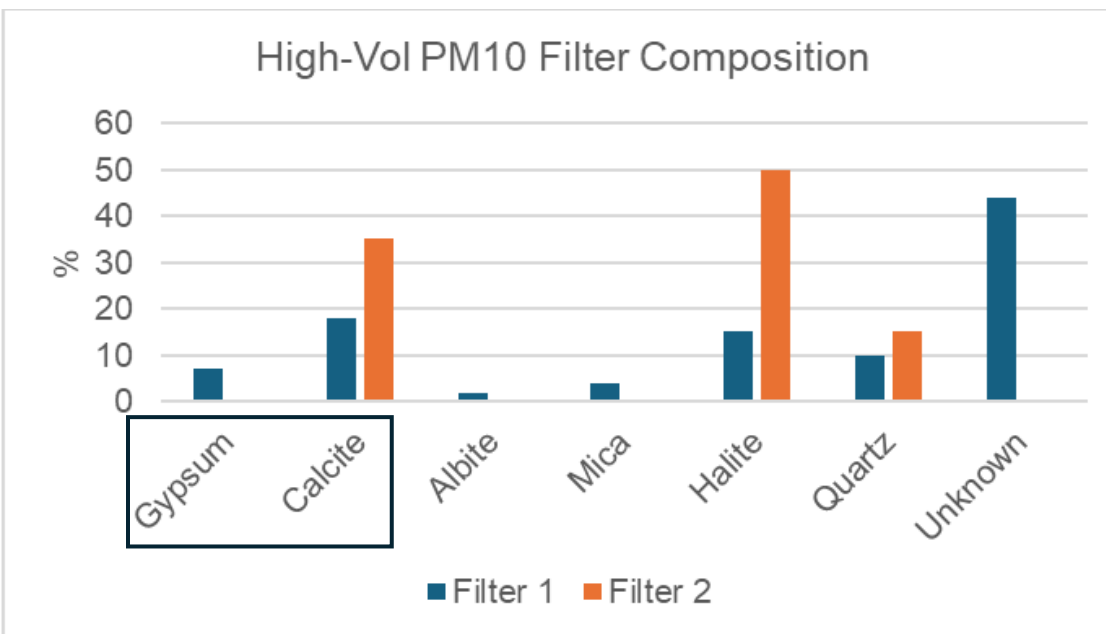
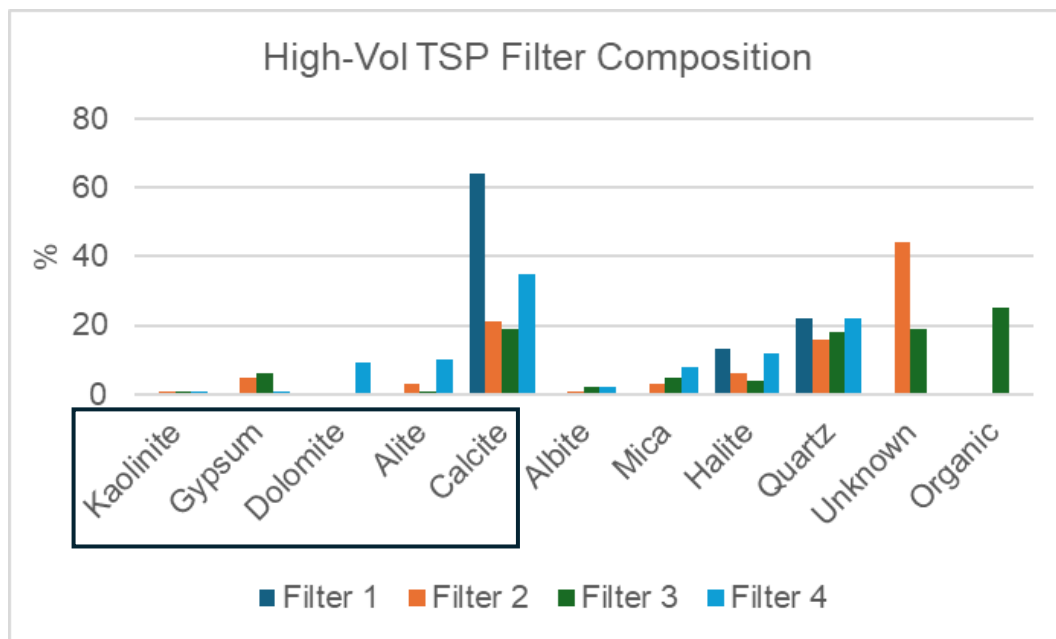
Sample 3: 11/11/24–12/12/24 (31 days)

Sample 4: 12/12/24–13/01/25 (31 days)

Sample 5: 13/01/25–14/02/25 (31 days)

Sample 6: 14/02/25–14/03/25 (28 days)

Mineralogical Composition of the Filter Samples



TSP

Filter 1: 30/08/2024 - 18/11/2024 (80 days)

Filter 2: 18/11/2024 - 28/02/2025 (102 days)

Filter 3: 28/02/2025 - 26/06/2025 (118 days)

Filter 4: 26/06/2025 - 05/09/2025 (71 days)

PM₁₀

Filter 1: 18/11/2024 - 26/06/2025 (220 days)

Filter 2: 26/06/2025 - 05/09/2025 (71 days)

Metal Composition of the Filter Samples

High vol PM10 and TSP filter samples (80 days: 30/08/2024 - 18/11/2024)					
Metals	PM10 (µg/m3)	TSP (µg/m3)			
Pb	0.01	0.01			
Zn	0.03	0.12			
Cd	ND	ND			
Fe	0.35	1.25			
Cu	ND	0.01			
Mn	0.01	0.03			
S	0.66	1.25			
Se	ND	ND			
As	ND	ND			
Cr	ND	ND			
Co	ND	ND			
Ni	ND	ND			
Ag	ND	ND			
Ba	ND	0.02			
Tl	ND	ND			

Summary

- EPA conducted a 12-month targeted air quality monitoring campaign in response to community concerns about dust from the Adbri Birkenhead cement facility.
- Monitoring identified occasional PM₁₀, TSP and dust deposition exceedances, with bushfire smoke contributing to several elevated events.
- Chemical and mineralogical analyses confirmed that cement manufacturing activities contributed to local airborne and deposited dust.
- Dust movement analysis also identified contributions from other industrial sources on the northern Le Fevre Peninsula.
- Integrating continuous monitoring, dust chemistry, and meteorological analysis enabled effective source differentiation and improved understanding of local dust impacts.
- Findings provide a strong scientific basis to support future environmental management, regulatory decision-making, and targeted dust mitigation strategies.

Thank you

Environment Protection Authority

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