

28 June 2024

Chris Schneider  
Managing Director  
National Ceramic Industries Australia  
PO Box 765  
Maitland NSW 2320

Dear Chris

## **Environmental Monitoring for National Ceramic Industries Australia - May 2024**

Please find enclosed the documentation for the environmental monitoring carried out for National Ceramic Industries Australia during May 2024. Sampling methodology and adopted assessment criteria are detailed below.

### **1.0 Sampling Methodology**

Sampling was performed by AECOM Australia Pty Ltd (AECOM) and sample analysis was carried out by ALS NATA accredited laboratory. All sampling and analysis were carried out in accordance with Environmental Protection Authority (EPA) approved methods with reference to the following Australian Standards:

- monitoring of fine suspended particulates (PM<sub>10</sub>) on the EPA six-day cycle in accordance with:
  - *AS/NZS 3580.9.6 (2015) Methods for the Sampling and Analysis of Ambient Air – Determination of Suspended Particulate Matter – PM<sub>10</sub> High Volume Sampler with Size Selective Inlet – Gravimetric Method.*
- monitoring of fluorides in ambient air in accordance with:
  - *AS/NZS 3580.13.2 (2013) Determination of fluorides – Gaseous and acid-soluble particulate fluorides – Manual, double filter paper sampling.*
- meteorological monitoring in accordance with:
  - *AS 3580.1.1 (2016) – Methods for sampling and analysis of ambient air – Part 1.1 – Guide to siting air monitoring equipment.*
  - *AS 3580.14 (2014) – Methods for sampling and analysis of ambient air – Part 14: Meteorological monitoring for ambient air quality monitoring.*
- monitoring of surface water quality in accordance with:
  - *AS/NZS 5667.1:1998 (R2016) Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples.*
  - *AS/NZS 5667.4:1998 (R2016) Guidance on sampling from lakes, natural and manmade.*

### **2.0 Assessment Criteria**

Suspended particulate loads are assessed against the impact assessment criteria defined in the Project Approval conditions (09\_0006 – National Ceramic Industries Australia Tile Manufacturing Facility Expansion Project, 19 January 2012). The assessment criteria for PM<sub>10</sub> (particulate matter with an aerodynamic diameter of less than 10 µm) are:

- 50 µg/m<sup>3</sup> over a 24-hour period
- 30 µg/m<sup>3</sup> as an annual average.

Ambient fluoride concentrations are assessed against the guidelines defined in NSW EPA *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (NSW EPA (2022)).

The NSW EPA impact assessment criteria for ambient fluoride are:

- 2.9 µg/m<sup>3</sup> over a 24-hour period
- 1.7 µg/m<sup>3</sup> over a 7-day period.

Surface waters are assessed in accordance with default trigger values for physical and chemical stressors for southeast Australia in the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZG, 2018). These values are:

- pH in the range of 6.5 - 8.5 (Table 3.3.2 - NSW Lowland River)
- electrical conductivity (EC) in the range of 125 – 2200 µS/cm (Table 3.3.3 - NSW Lowland River).

### **3.0 Monitoring Results**

Monitoring results for the month of May 2024 are presented in the attachments to this letter. Monitoring results for the preceding two months are also presented to demonstrate quarterly trends in results.

The May 2024 monitoring results show that all ambient PM<sub>10</sub> results were below the short-term impact assessment criterion (50 µg/m<sup>3</sup>) as defined in the DPIE Project Approval (Schedule 3, Condition 15, Table 2).

The PM<sub>10</sub> rolling annual average concentration at the Southeast site remains below the Project Approval annual criterion of 30 µg/m<sup>3</sup> with an average of 16.0 µg/m<sup>3</sup> following the May monitoring period. The Northwest annual average is also below the criteria and is sitting at 21.9 µg/m<sup>3</sup> following the completion of the May monitoring period.

Fluoride results for May remain below the relevant assessment criteria at both the Northwest and Southeast monitoring sites with no exceedances of either the 24-hour (2.9 µg/m<sup>3</sup>) or 7-day (1.7 µg/m<sup>3</sup>) criteria this month.

Pond 4, being the last detention pond on site before water potentially leaves the site is monitored for pH, Electrical Conductivity and Temperature on a weekly basis. The adopted ANZG 2018 guidelines for pH and conductivity are the default trigger values for slightly disturbed aquatic ecosystems in NSW lowland rivers.

pH measurements for May 2024 were within both the upper and lower limits of the adopted guidelines with no water was observed to be flowing offsite during the month.

All electrical conductivity measurements for May were within both upper and lower limits of the adopted guidelines. Water temperature was also measured weekly however no guideline is available for assessment. Pond 4 was not observed to be flowing offsite throughout May 2024.

A figure showing the monitoring locations and monitoring results and plots can be found attached along with the wind rose for May. Laboratory certificates, field sheets and calibration data along with relevant meteorology data can be provided on request.

If you require any further information, please contact Cyé Buckland on 0488 777 160.

Yours faithfully,



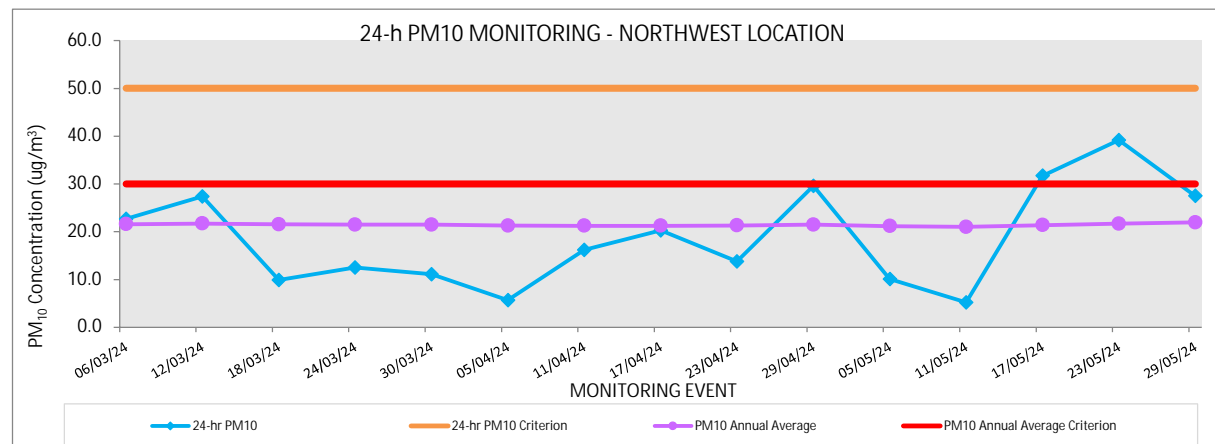
cye.buckland@aecom.com

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encl: Monitoring data tables and charts, wind rose, monitoring locations

### North West Monitoring Location - 24 hour PM10 Monitoring

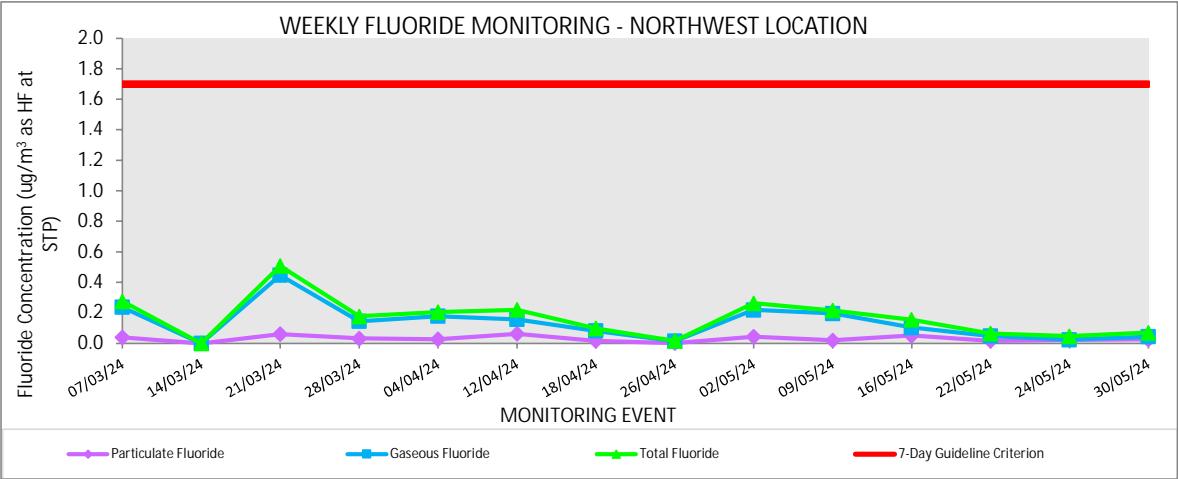
North West - 24 hour PM10 Monitoring				
March 2024 to May 2024				
Monitoring Event	24-hr PM <sub>10</sub>	24-hr PM <sub>10</sub> Criterion	PM <sub>10</sub> Annual Average	PM <sub>10</sub> Annual Average Criterion
	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	
6-Mar-24	22.7	50	21.6	30
12-Mar-24	27.4	50	21.7	30
18-Mar-24	9.9	50	21.6	30
24-Mar-24	12.5	50	21.5	30
30-Mar-24	11.1	50	21.5	30
5-Apr-24	5.7	50	21.3	30
11-Apr-24	16.2	50	21.3	30
17-Apr-24	20.3	50	21.3	30
23-Apr-24	13.8	50	21.3	30
29-Apr-24	29.6	50	21.5	30
5-May-24	10.1	50	21.2	30
11-May-24	5.2	50	21.0	30
17-May-24	31.7	50	21.4	30
23-May-24	39.2	50	21.7	30
29-May-24	27.5	50	21.9	30



North West Monitoring Location - 7 Day Fluoride Monitoring

North West - 7 Day Fluoride Monitoring					
February 2024 to May 2024					
Monitoring Event		Particulate Fluoride	Gaseous Fluoride	Total Fluoride	7-Day Guideline Criterion
Start Date	End Date	(µg/m³ as HF at STP)	(µg/m³ as HF at STP)	(µg/m³ as HF at STP)	(µg/m³ as HF at STP)
28-Feb-24	7-Mar-24	0.039	0.237	0.276	1.7
7-Mar-24	14-Mar-24	--	--	--	1.7
14-Mar-24	21-Mar-24	0.060	0.447	0.507	1.7
21-Mar-24	28-Mar-24	0.032	0.145	0.177	1.7
28-Mar-24	4-Apr-24	0.027	0.178	0.205	1.7
4-Apr-24	12-Apr-24	0.063	0.157	0.220	1.7
12-Apr-24	18-Apr-24	0.017	0.082	0.099	1.7
18-Apr-24	26-Apr-24	0.002	0.015	0.017	1.7
26-Apr-24	2-May-24	0.044	0.219	0.263	1.7
2-May-24	9-May-24	0.020	0.196	0.216	1.7
9-May-24	16-May-24	0.051	0.104	0.155	1.7
16-May-24	22-May-24	0.017	0.048	0.065	1.7
22-May-24	24-May-24	0.023	0.024	0.047	1.7
24-May-24	30-May-24	0.026	0.044	0.070	1.7

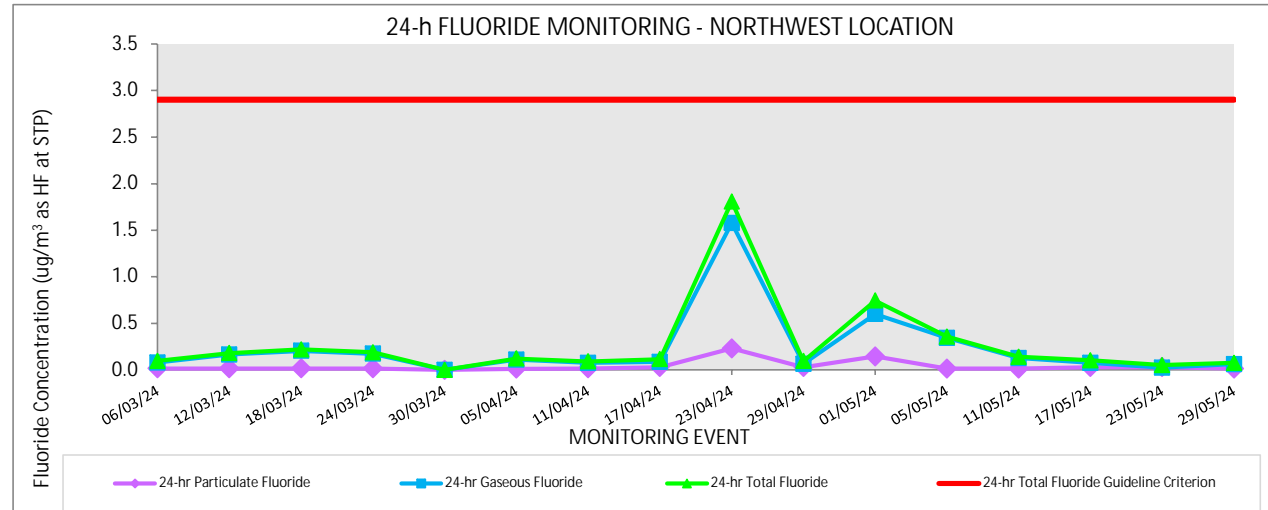
Note: 7 March sample failed to run.



## North West Monitoring Location - 24 hour Fluoride Monitoring

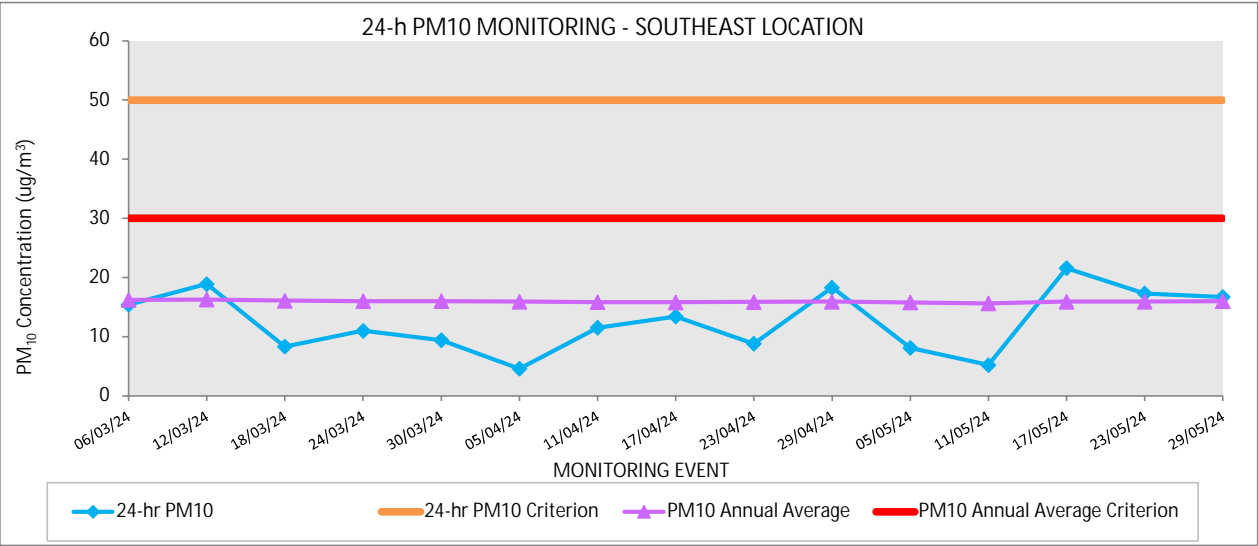
North West - 24 hour Fluoride Monitoring				
March 2024 to May 2024				
Monitoring Event	24-hr Particulate Fluoride	24-hr Gaseous Fluoride	24-hr Total Fluoride	24-hr Total Fluoride Guideline Criterion
	( $\mu\text{g}/\text{m}^3$ as HF at STP)	( $\mu\text{g}/\text{m}^3$ as HF at STP)	( $\mu\text{g}/\text{m}^3$ as HF at STP)	( $\mu\text{g}/\text{m}^3$ as HF at STP)
06-Mar-24	0.016	0.080	0.096	2.9
12-Mar-24	0.016	0.164	0.180	2.9
18-Mar-24	0.016	0.204	0.220	2.9
24-Mar-24	0.015	0.174	0.189	2.9
30-Mar-24	--	--	--	2.9
05-Apr-24	0.012	0.110	0.122	2.9
11-Apr-24	0.015	0.076	0.091	2.9
17-Apr-24	0.029	0.086	0.115	2.9
23-Apr-24	0.230	1.578	1.808	2.9
29-Apr-24	0.029	0.065	0.094	2.9
01-May-24	0.145	0.600	0.745	2.9
05-May-24	0.014	0.344	0.358	2.9
11-May-24	0.014	0.127	0.141	2.9
17-May-24	0.029	0.075	0.104	2.9
23-May-24	0.029	0.023	0.052	2.9
29-May-24	0.014	0.061	0.075	2.9

Note - 30 March sample did not run. Catch up sample performed 1 May.



South East Monitoring Location - 24 hour PM10 Monitoring

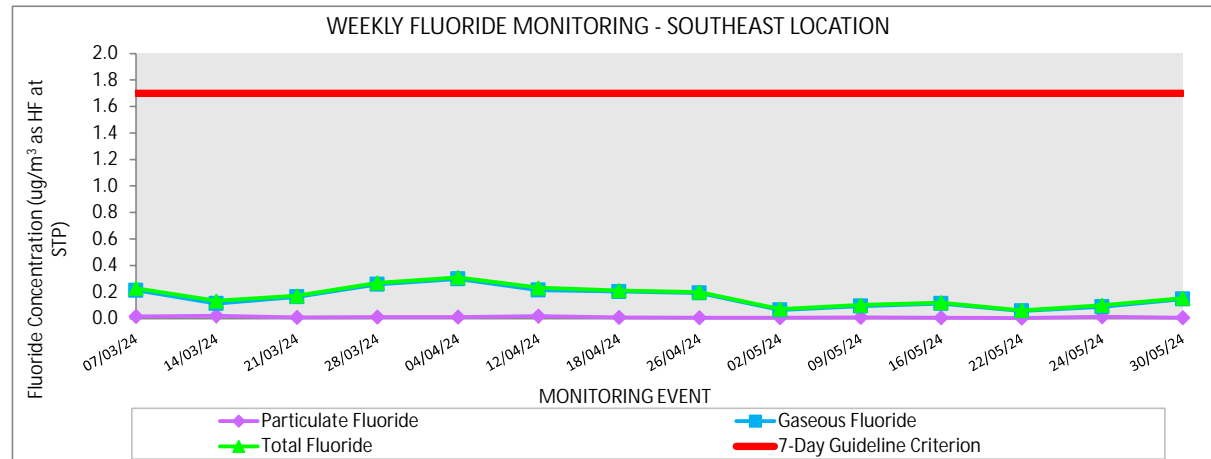
South East - 24 hour PM10 Monitoring				
March 2024 to May 2024				
Monitoring Event	24-hr PM <sub>10</sub>	24-hr PM <sub>10</sub> Criterion	PM <sub>10</sub> Annual Average	PM <sub>10</sub> Annual Average Criterion
	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	
06-Mar-24	15.4	50	16.2	30
12-Mar-24	18.9	50	16.3	30
18-Mar-24	8.3	50	16.1	30
24-Mar-24	11.0	50	16.0	30
30-Mar-24	9.4	50	16.0	30
05-Apr-24	4.6	50	15.9	30
11-Apr-24	11.5	50	15.8	30
17-Apr-24	13.4	50	15.8	30
23-Apr-24	8.8	50	15.9	30
29-Apr-24	18.3	50	15.9	30
05-May-24	8.1	50	15.8	30
11-May-24	5.2	50	15.6	30
17-May-24	21.6	50	15.9	30
23-May-24	17.3	50	15.9	30
29-May-24	16.7	50	16.0	30



## South East Monitoring Location - 7 Day Fluoride Monitoring

South East - 7 Day Fluoride Monitoring					
February 2024 to May 2024					

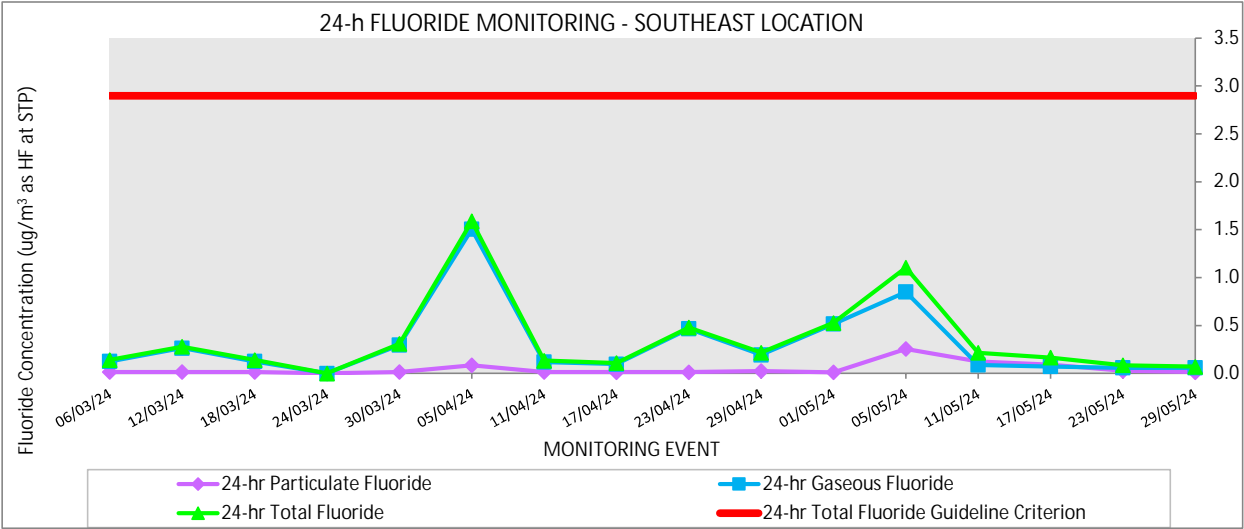
Monitoring Event		Particulate Fluoride	Gaseous Fluoride	Total Fluoride	7-Day Guideline Criterion
Start Date	End Date	( $\mu\text{g}/\text{m}^3$ as HF at STP)	( $\mu\text{g}/\text{m}^3$ as HF at STP)	( $\mu\text{g}/\text{m}^3$ as HF at STP)	( $\mu\text{g}/\text{m}^3$ as HF at STP)
28-Feb-24	7-Mar-24	0.016	0.213	0.229	1.7
7-Mar-24	14-Mar-24	0.020	0.113	0.133	1.7
14-Mar-24	21-Mar-24	0.008	0.164	0.172	1.7
21-Mar-24	28-Mar-24	0.012	0.257	0.269	1.7
28-Mar-24	4-Apr-24	0.011	0.300	0.311	1.7
4-Apr-24	12-Apr-24	0.018	0.214	0.232	1.7
12-Apr-24	18-Apr-24	0.008	0.203	0.211	1.7
18-Apr-24	26-Apr-24	0.007	0.193	0.200	1.7
26-Apr-24	2-May-24	0.006	0.065	0.071	1.7
2-May-24	9-May-24	0.008	0.094	0.102	1.7
9-May-24	16-May-24	0.006	0.113	0.119	1.7
16-May-24	22-May-24	0.005	0.058	0.063	1.7
22-May-24	24-May-24	0.013	0.088	0.101	1.7
24-May-24	30-May-24	0.007	0.146	0.153	1.7



South East Monitoring Location - 24 hour Fluoride Monitoring

South East - 24 hour Fluoride Monitoring				
March 2024 to May 2024				
Monitoring Event	24-hr Particulate Fluoride	24-hr Gaseous Fluoride	24-hr Total Fluoride	24-hr Total Fluoride Guideline Criterion
	(µg/m³ as HF at STP)	(µg/m³ as HF at STP)	(µg/m³ as HF at STP)	(µg/m³ as HF at STP)
6-Mar-24	0.014	0.126	0.140	2.9
12-Mar-24	0.014	0.264	0.278	2.9
18-Mar-24	0.015	0.125	0.14	2.9
24-Mar-24	--	--	--	2.9
30-Mar-24	0.014	0.295	0.309	2.9
5-Apr-24	0.084	1.506	1.590	2.9
11-Apr-24	0.014	0.119	0.133	2.9
17-Apr-24	0.013	0.096	0.109	2.9
23-Apr-24	0.013	0.465	0.478	2.9
29-Apr-24	0.024	0.193	0.217	2.9
01-May-24	0.012	0.516	0.528	2.9
05-May-24	0.255	0.849	1.104	2.9
11-May-24	0.125	0.089	0.214	2.9
17-May-24	0.092	0.072	0.164	2.9
23-May-24	0.026	0.058	0.084	2.9
29-May-24	0.013	0.057	0.07	2.9

24 March sample not analysed due to sampling time significantly more than 24hrs due to timer issue.

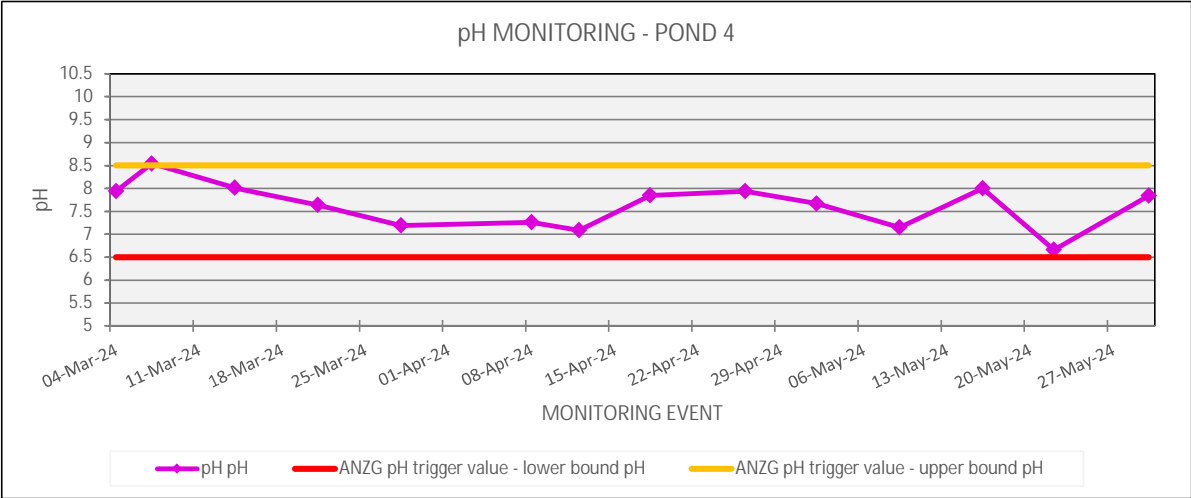




Pond 4 - Weekly pH Monitoring

March 2024 to May 2024

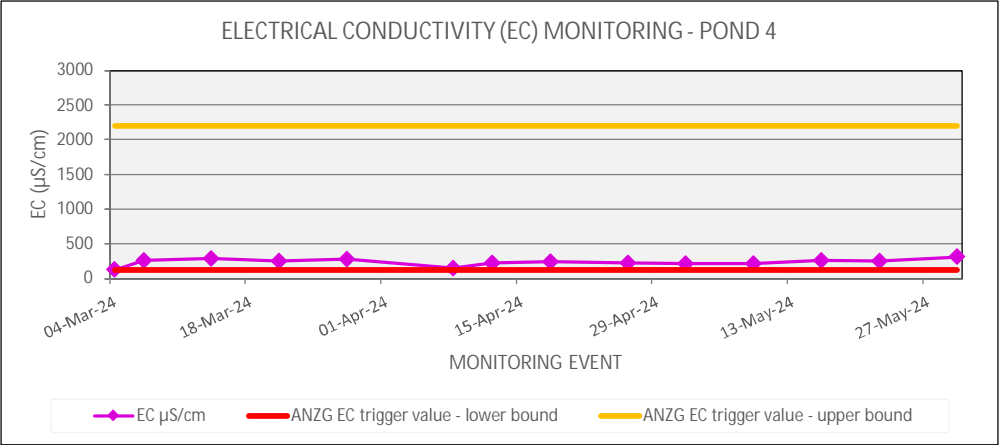
Monitoring Event	pH	ANZG pH trigger value - lower bound	ANZG pH trigger value - upper bound	Unable to sample
	pH	pH	pH	
04-Mar-24	7.94	6.5	8.5	
07-Mar-24	8.54	6.5	8.5	
14-Mar-24	8.01	6.5	8.5	
21-Mar-24	7.64	6.5	8.5	
28-Mar-24	7.19	6.5	8.5	
08-Apr-24	7.26	6.5	8.5	
12-Apr-24	7.09	6.5	8.5	
18-Apr-24	7.85	6.5	8.5	
26-Apr-24	7.94	6.5	8.5	
02-May-24	7.67	6.5	8.5	
09-May-24	7.15	6.5	8.5	
16-May-24	8.00	6.5	8.5	
22-May-24	6.66	6.5	8.5	
30-May-24	7.84	6.5	8.5	



Pond 4 - Weekly EC Monitoring

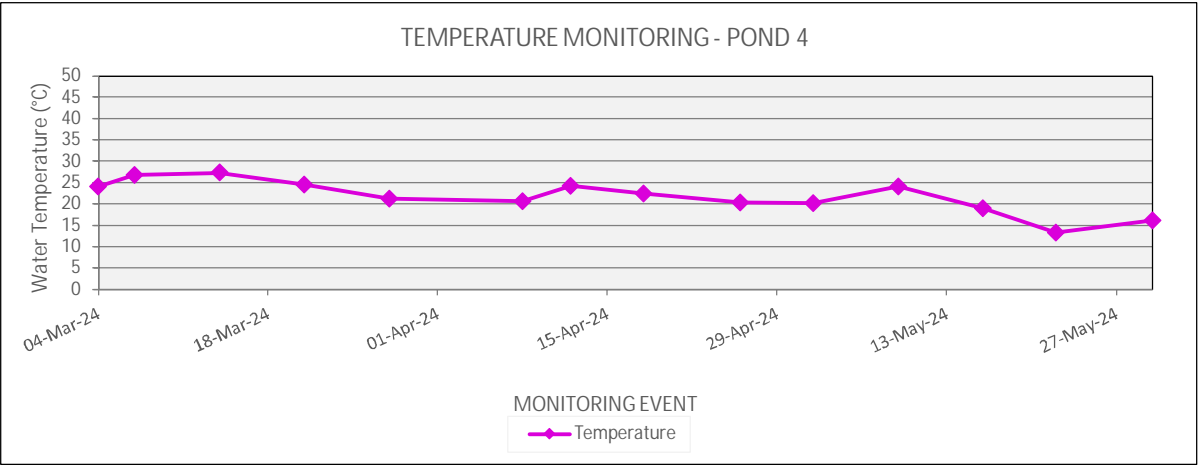
March 2024 to May 2024

Monitoring Event	EC	ANZG EC trigger value - lower bound	ANZG EC trigger value - upper bound	Unable to sample
	µS/cm	µS/cm	µS/cm	
04-Mar-24	129	125	2200	
07-Mar-24	262	125	2200	
14-Mar-24	291	125	2200	
21-Mar-24	246	125	2200	
28-Mar-24	281	125	2200	
08-Apr-24	152	125	2200	
12-Apr-24	219	125	2200	
18-Apr-24	238	125	2200	
26-Apr-24	220	125	2200	
02-May-24	209	125	2200	
09-May-24	214	125	2200	
16-May-24	260	125	2200	
22-May-24	247	125	2200	
30-May-24	314	125	2200	



<b>Pond 4 - Weekly Temperature Monitoring</b>
March 2024 to May 2024

Monitoring Event	Temperature	Unable to sample
	°C	
04-Mar-24	24.1	
07-Mar-24	26.7	
14-Mar-24	27.3	
21-Mar-24	24.5	
28-Mar-24	21.2	
08-Apr-24	20.6	
12-Apr-24	24.2	
18-Apr-24	22.4	
26-Apr-24	20.3	
02-May-24	20.1	
09-May-24	24.1	
16-May-24	19.0	
22-May-24	13.3	
30-May-24	16.1	







## Legend

0 250 500 Meters



Ambient Air Monitoring Station

NCIA Site Boundary

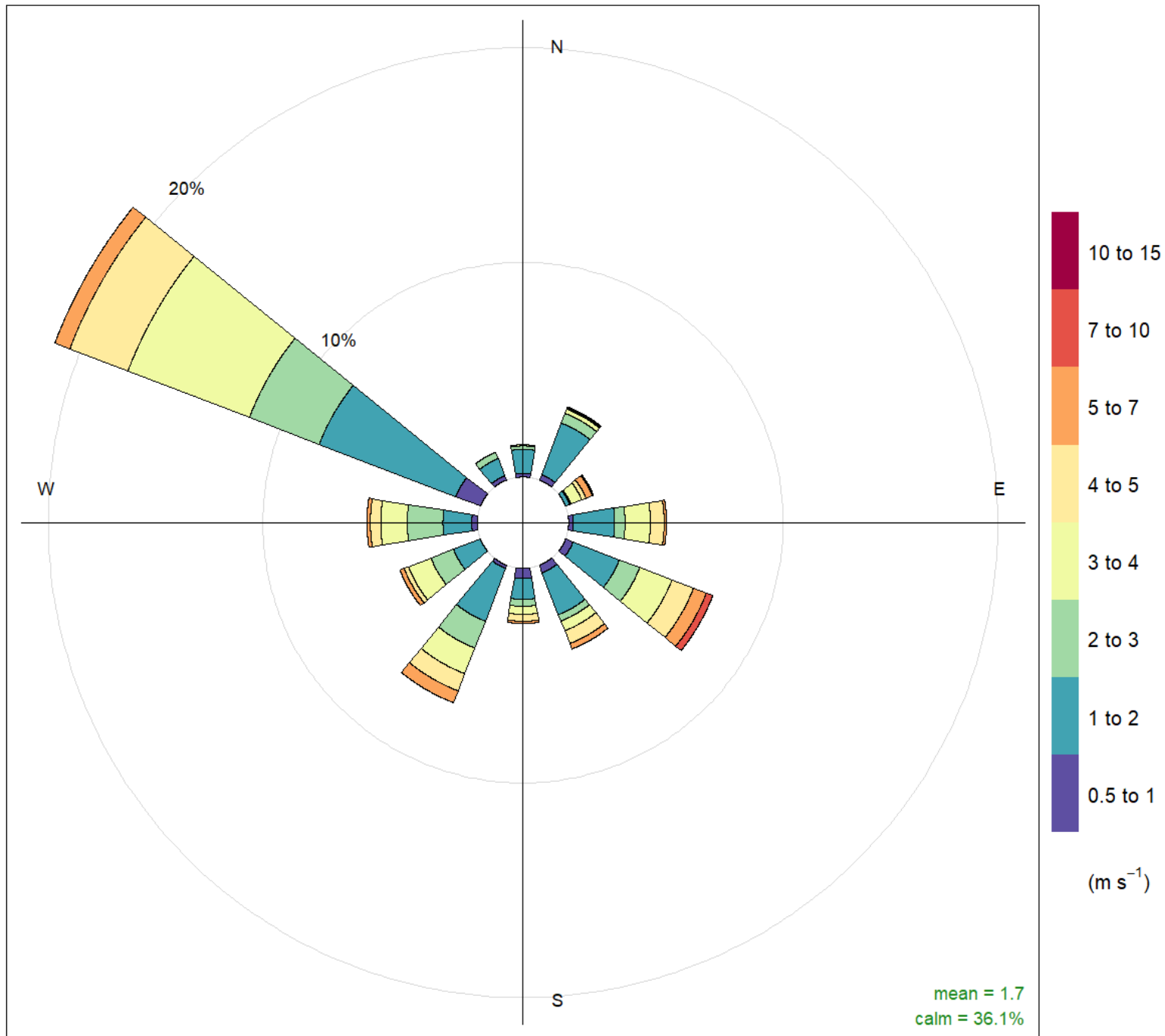
Watercourse

**AECOM**

Source: Imagery © Nearmap 2021



60613063 - NCIA Meteorology Data - May 2024



Frequency of counts by wind direction (%)