

Maules Creek Coal Mine Community Consultative Committee Meeting #41

Environmental Monitoring Report For the Q1 period, January – March 2023

Attended Noise Monitoring

Maules Creek Coal (MCC) engaged an independent acoustic consultant to conduct LAeq (15minutes) and LA1 (1 minute) attended noise monitoring at six monitoring locations on site.

A. NOISE GENERATED BY MCCM AGAINST OPERATIONAL DAY & NIGHT NOISE CRITERIA; JANUARY – MARCH 2023.

The results show that MCCM is within EPL 20221 compliance limits, that operations did not exceed the applicable; LAeq (15minute) 35dB Criteria, LA1 (1Minute) 45dB Criteria and the EPA's Noise Policy for Industry compliance guidelines.

Table 1 – January Noise Monitoring

Location	Start Date and Time	Wind		Stability Class	Very enhancing? ¹	Limits, dB ¹		Site levels, dB ²		Exceedances, dB	
		Speed m/s	Direction ³			L _{Aeq,15minute}	L _{Amax}	L _{Aeq,15minute}	L _{Amax}	L _{Aeq,15minute}	L _{Amax}
NM1	18/01/2023 22:30	0.4	0	E	No	35	45	IA	IA		Nil
NM2	18/01/2023 23:30	0.4	92	F	No	39	45	IA	IA		Nil
NM3	18/01/2023 23:26	0.3	0	F	No	35	45	IA	IA		Nil
NM4	18/01/2023 23:00	0.4	88	F	No	35	45	IA	IA		Nil
NM5	18/01/2023 22:00	0.4	0	F	No	35	45	<25	25		Nil
NM6	18/01/2023 23:59	0.4	84	F	No	35	45	IA	IA		Nil

Notes: 1. Noise limits are adjusted by +5 dB during 'very enhancing meteorological conditions' in accordance with the NPFL.
2. Site-only L_{Aeq,15minute}. Includes modifying factor penalties if applicable.
3. Degrees magnetic north, "-" indicates calm conditions.

Table 2 – February Noise Monitoring

Location	Start Date and Time	Wind		Stability Class	Very enhancing? ¹	Limits, dB ¹		Site levels, dB ²		Exceedances, dB	
		Speed m/s	Direction ³			L _{Aeq,15minute}	L _{Amax}	L _{Aeq,15minute}	L _{Amax}	L _{Aeq,15minute}	L _{Amax}
NM1	1/02/2023 23:00	0.2	192	F	No	35	45	22	25	Nil	Nil
NM2	2/02/2023 00:00	0.2	134	F	No	39	45	29	35	Nil	Nil
NM3	2/02/2023 00:35	0.2	208	F	No	35	45	IA	IA	Nil	Nil
NM4	1/02/2023 23:30	0.3	200	F	No	35	45	23	25	Nil	Nil
NM5	1/02/2023 22:30	0.1	130	F	No	35	45	25	29	Nil	Nil
NM6	1/02/2023 23:42	0.1	109	F	No	35	45	IA	IA	Nil	Nil

Notes: 1. Noise limits are adjusted by +5 dB during 'very enhancing meteorological conditions' in accordance with the NPFL.
2. Site-only L_{Aeq,15minute}. Includes modifying factor penalties if applicable.
3. Degrees magnetic north, "-" indicates calm conditions.

Table 3 – March Noise Monitoring

Location	Start Date and Time	Wind		Stability Class	Very enhancing? ¹	Limits, dB ¹		Site levels, dB ²		Exceedances, dB	
		Speed m/s	Direction ³			L _{Aeq,15minute}	L _{Amax}	L _{Aeq,15minute}	L _{Amax}	L _{Aeq,15minute}	L _{Amax}
NM1	9/03/2023 22:30	0.5	24	F	No	35	45	22	35	Nil	Nil
NM2	9/03/2023 23:30	0.2	0	F	No	39	45	26	30	Nil	Nil
NM3	9/03/2023 23:36	0.3	0	F	No	35	45	1A	1A	Nil	Nil
NM4	9/03/2023 23:00	0.7	17	F	No	35	45	25	28	Nil	Nil
NM5	9/03/2023 22:00	1.6	16	F	No	35	45	1A	1A	Nil	Nil
NM6	9/03/2023 23:56	0.2	0	F	No	35	45	<20	<20	Nil	Nil

Notes: 1. Noise limits are adjusted by +5 dB during 'very enhancing meteorological conditions' in accordance with the NPfl.
2. Site-only L_{Aeq,15minute}, includes modifying factor penalties if applicable.
3. Degrees magnetic north, "-" indicates calm conditions.

Wind Direction during Attended Monitoring

Wind direction data is collected from the Maule's Creek Coal Mine (MCCM) Automated Weather Station (AWS). Wind data for the duration of the attended monitoring assessment, recorded at the MCCM AWS is presented in the table below.

Table 4 - Prevailing Wind Direction

Monitoring Date	Prevailing Wind Direction
July	SSE
August	SE
September	S

Blast Monitoring

There was 27 blasts at MCCM during Q1 2023. All blast monitoring results recorded within the reporting period have complied with applicable overpressure and ground vibration limits specified in the respective approvals.

Table 5 – Blast Results Summary

Parameter	Units	Frequency	Number	Average	Max	100% Limit	Exceedance (Yes / No)
Noise	dB	All	27	94.3	116.9	120	No
Vibration	mm/s		27	0.18	0.85	10	No

Air Quality

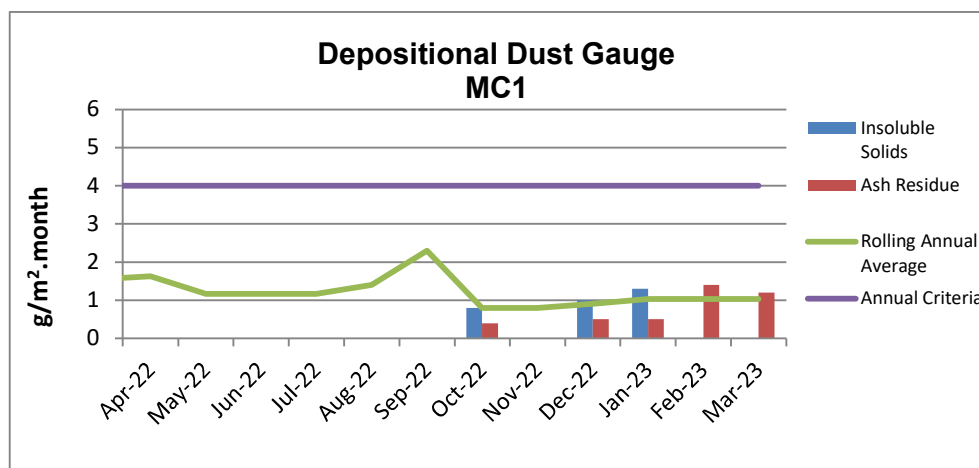
A. Total Depositional Dust

The 12 monthly rolling annual average remains below the relevant Project Approval (PA 10_0138) criteria of 4g/m²/month for the respective monitoring points.

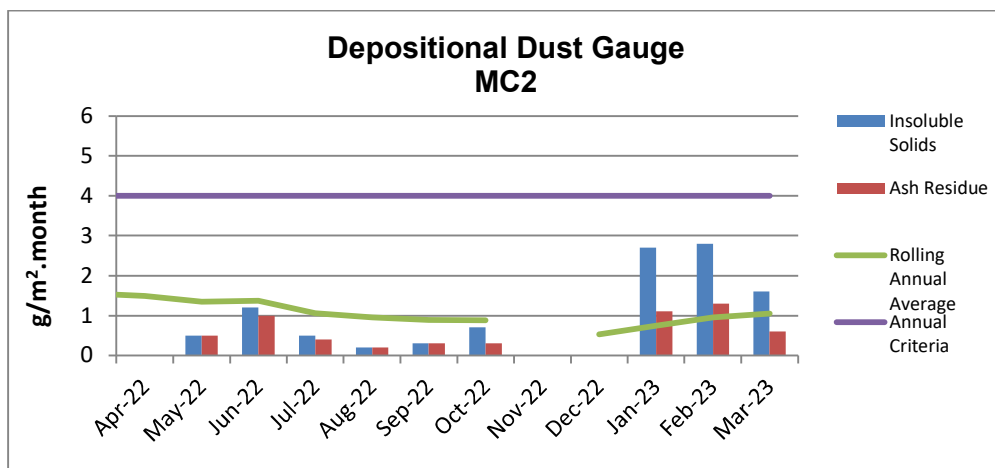
Table 6 – Deposited Dust Gauge Results [g/m²/month]

MONTH	MC1	MC2	MC3	MC4
January	1.3	2.7	6.5c	0.5
February	5.9c	2.8	2.0	1.6
March	4.2c	1.6	1.7	2.2
12 MONTH ROLLING AVERAGE	1.0	1.1	2.5	1.1

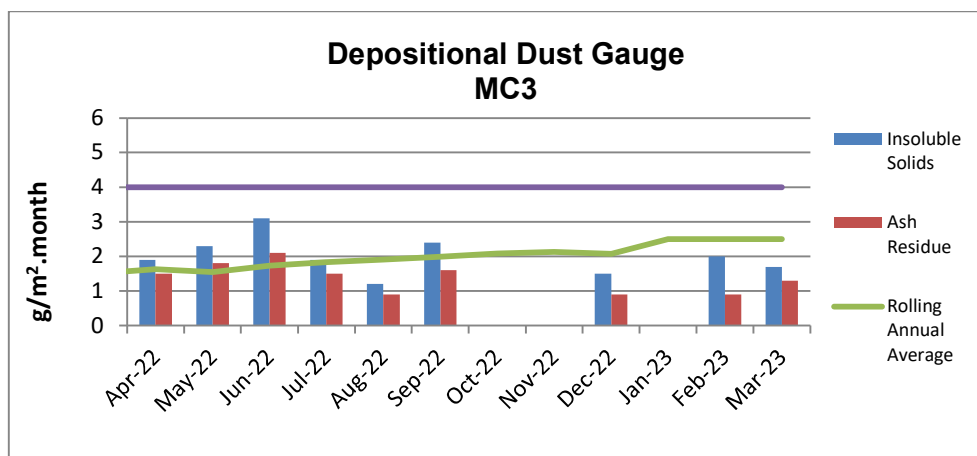
^c samples contaminated by bird dropping, decomposed insects or vegetable matter.



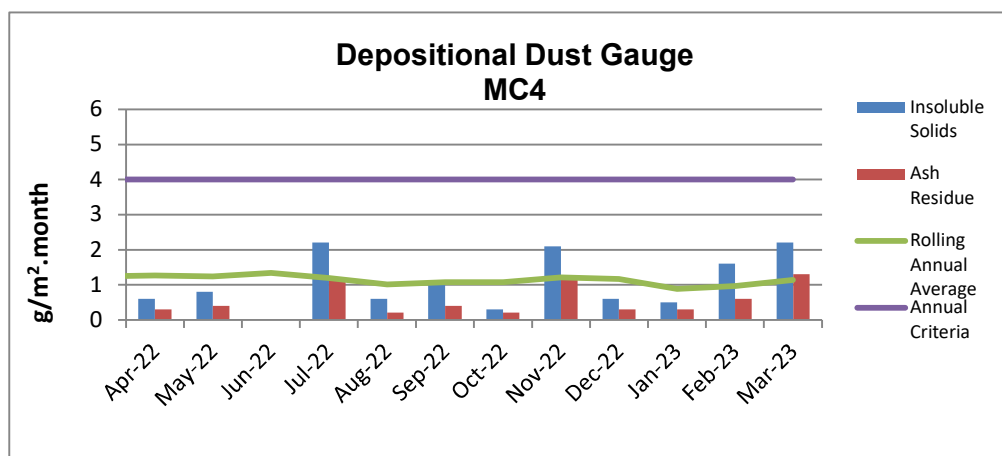
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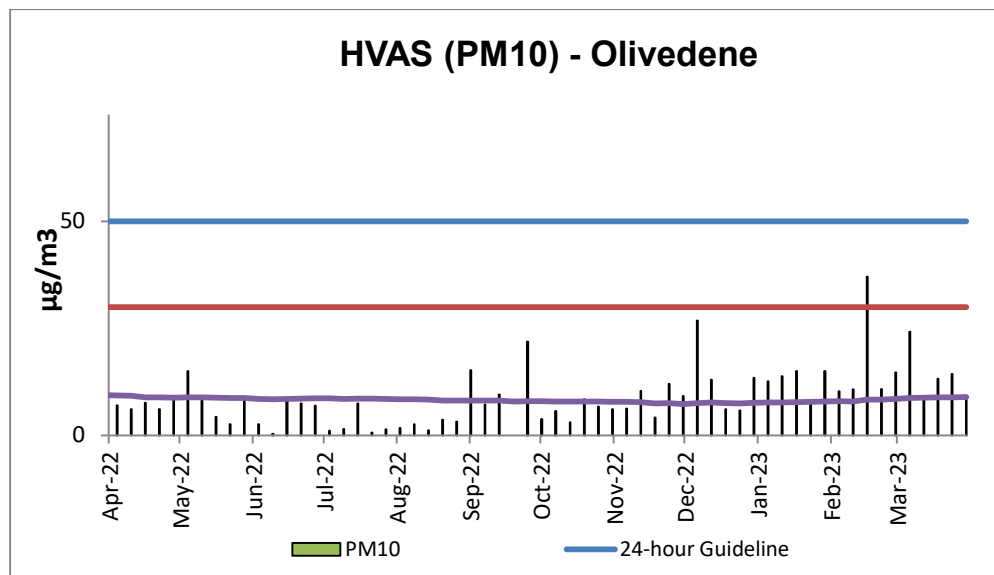


* Blank cells indicate sample periods where the sample has been contaminated and excluded from the results tables due to contaminated material (insect larvae, bird droppings, vegetation etc.).

B. High Volume Air Sampling (HVAS)

The HVAS monitor is located on the property 'Olivedene,' a mine owned property on Therribri Road. During past 12 months, there have been no exceedances of the 24-hour average of 50 $\mu\text{g}/\text{m}^3$.

HVAS PM₁₀ Rolling Annual Average as of September was **8.9 $\mu\text{g}/\text{m}^3$** , which is below the Annual Average Guideline of 30 $\mu\text{g}/\text{m}^3$.



C. TEOM - PM10 Results

The annual rolling average for PM10 at the Maules Creek Coal TEOM1 was **6.9 $\mu\text{g}/\text{m}^3$** , which is below the Project Approval annual average criteria of 30 $\mu\text{g}/\text{m}^3$ as shown in the following figure. There have been no exceedances of the 24-hour average for Q1 2023.

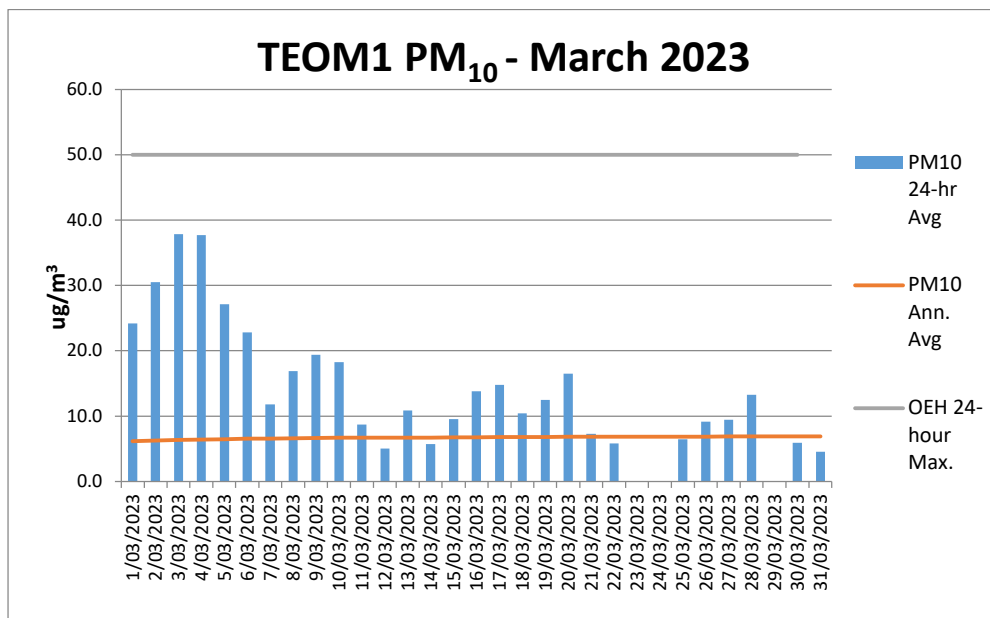


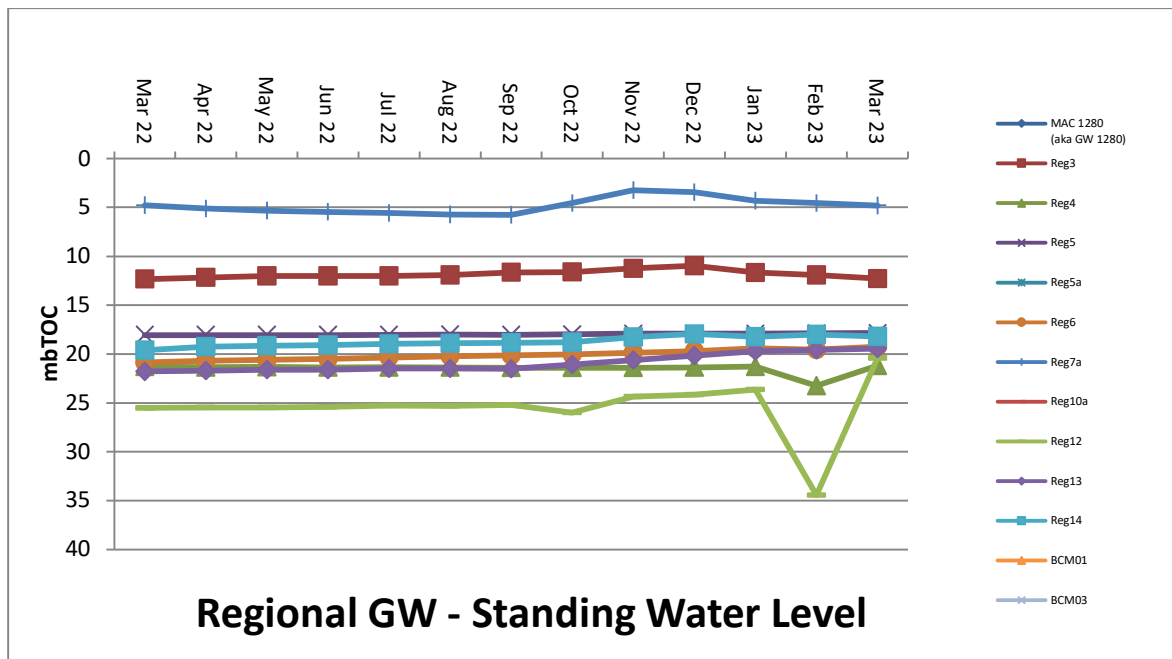
Figure 1 - TEOM Result – Particulate Matter PM₁₀ $\mu\text{g}/\text{m}^3$

* Blank columns indicate sample periods where there was either power outage, maintenance or other related causes.

Water Monitoring

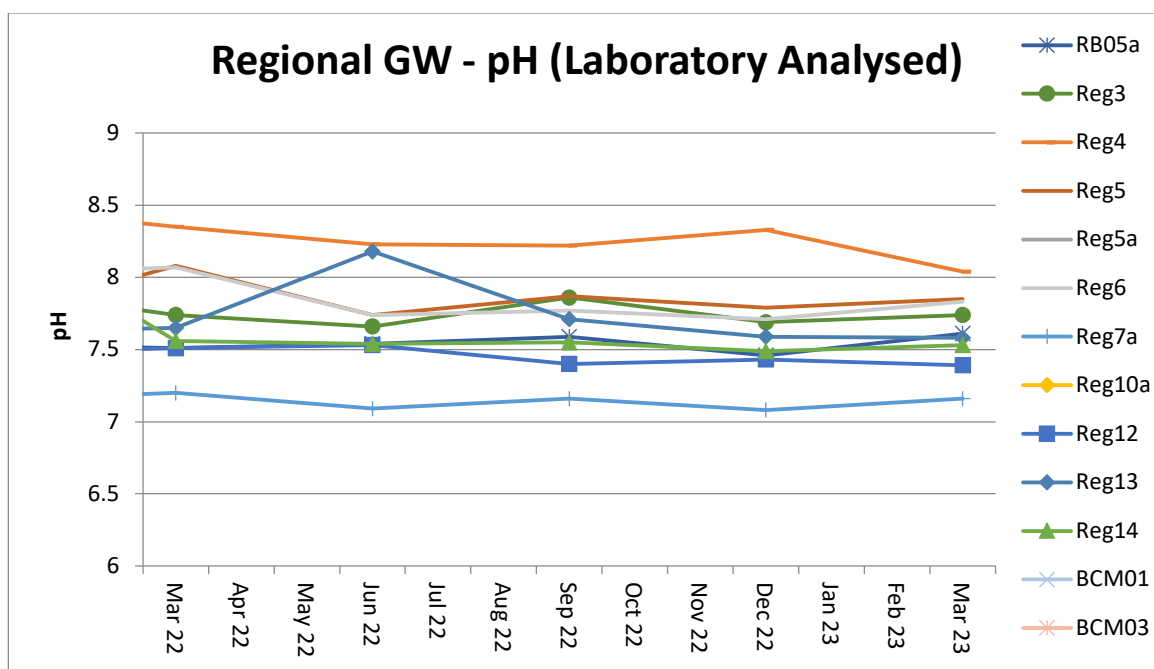
A. Groundwater

Groundwater monitoring results in open standpipe piezometers show levels to be relatively stable. The Regional bores were installed between Q4, 2013 and Q1, 2014. BCM01, BCM03, Reg10 are shallow bores which have remained dry since construction in 2013.



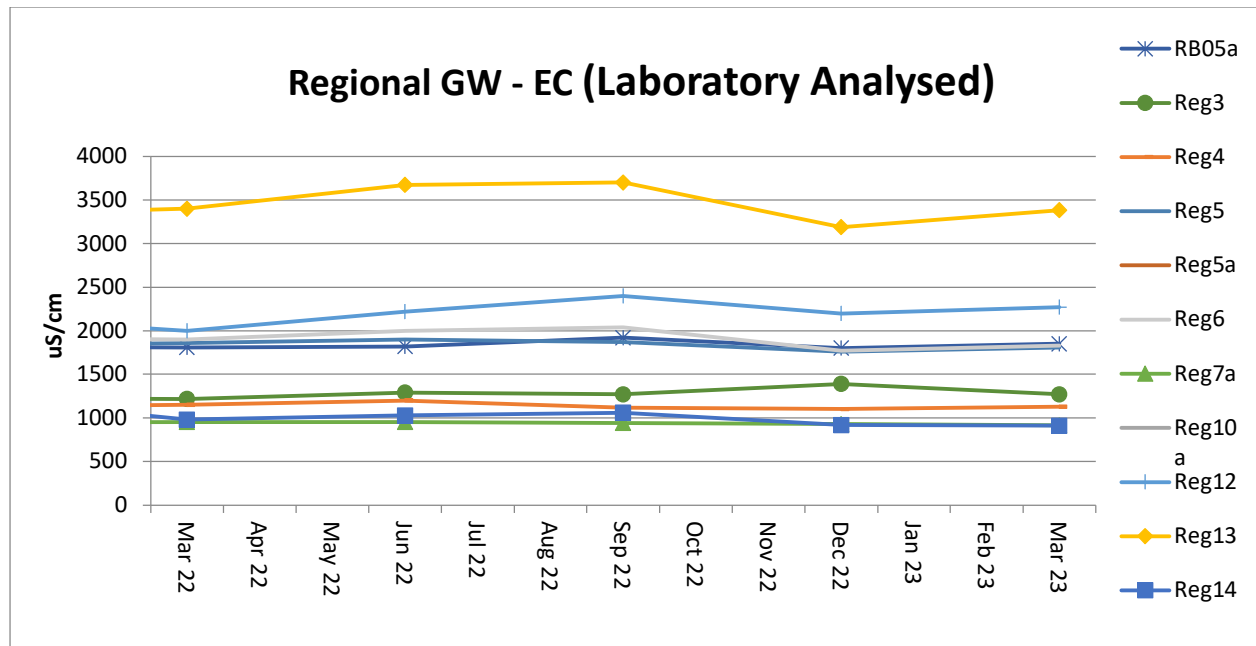
Acidity / Alkalinity (pH)

Over the past twelve months pH readings across the regional bores have remained static with very little fluctuation.



Electrical Conductivity

Laboratory Electrical Conductivity (EC) levels are all within historic groundwater EC range of 500 $\mu\text{S}/\text{cm}$ to 2,500 $\mu\text{S}/\text{cm}$, with the exception of monitoring bore Reg13 which has a historic groundwater EC range of 2,500 $\mu\text{S}/\text{cm}$ to 4,100 $\mu\text{S}/\text{cm}$. Within the last twelve months EC has remained static.

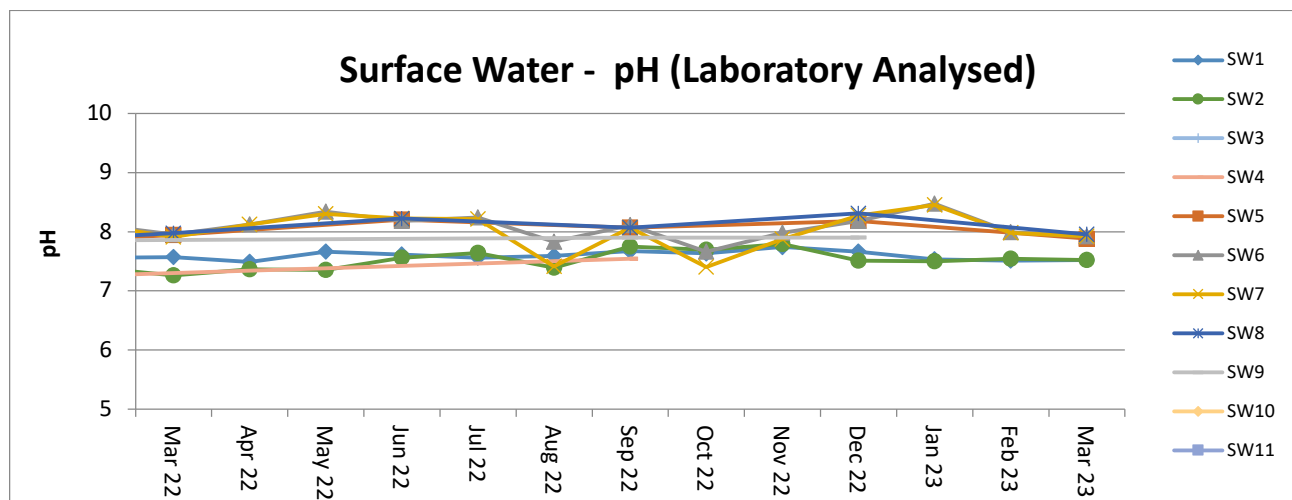


B. Surface Water – Creeks and Rivers

Routine surface water monitoring is conducted in surrounding creeks and rivers on a monthly basis. Results for parameters including pH, EC and Total Suspended Solids (TSS) are shown in the figures below.

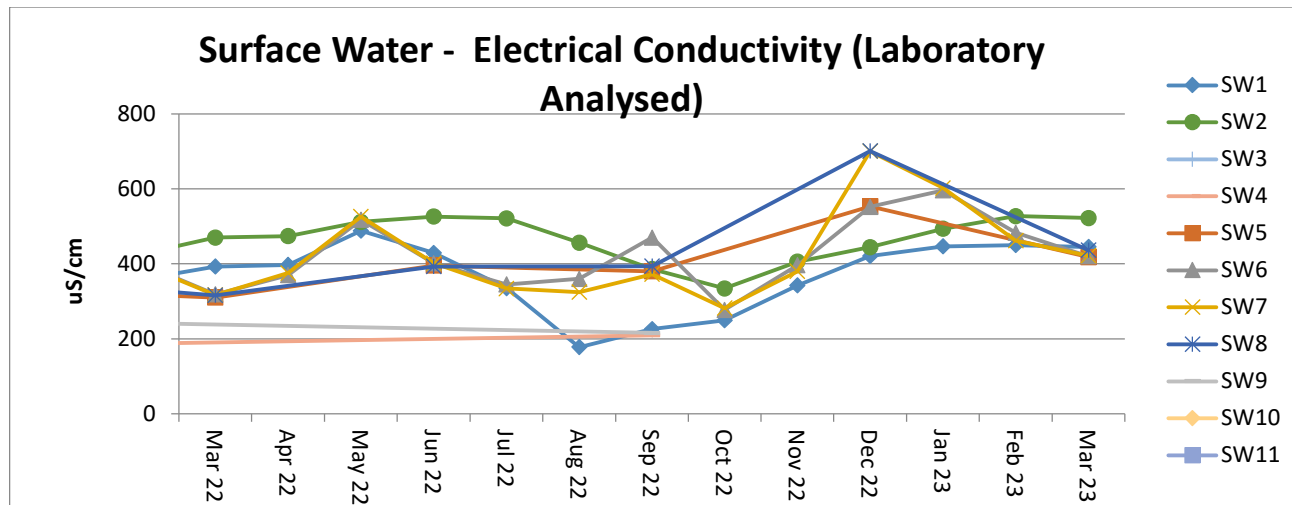
Acidity / Alkalinity (pH)

Monitoring results for pH in creeks and rivers surrounding MCCM are all trending within the ANZECC range for Irrigation, Ecosystem Health and Recreation.



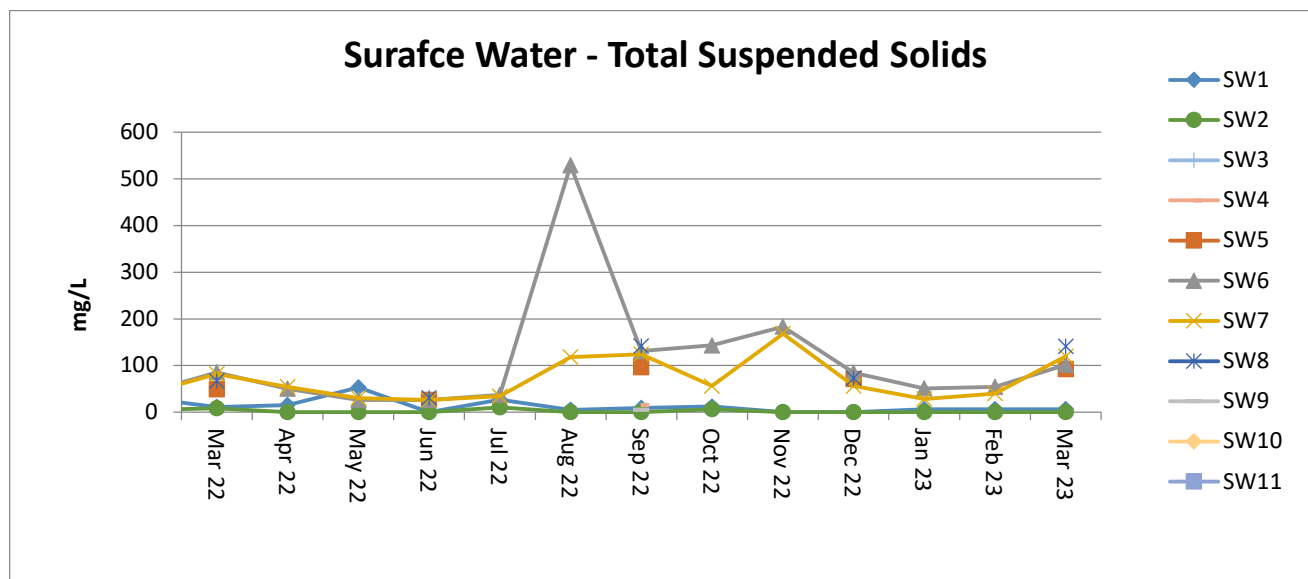
Electrical Conductivity

Surface water EC trends have remained consistent with SW5, SW6, SW7 and SW8 all historically variable. SW5, SW6, SW7 and SW8 are points along the Namoi River which are subject to regulated and variable flow regimes.



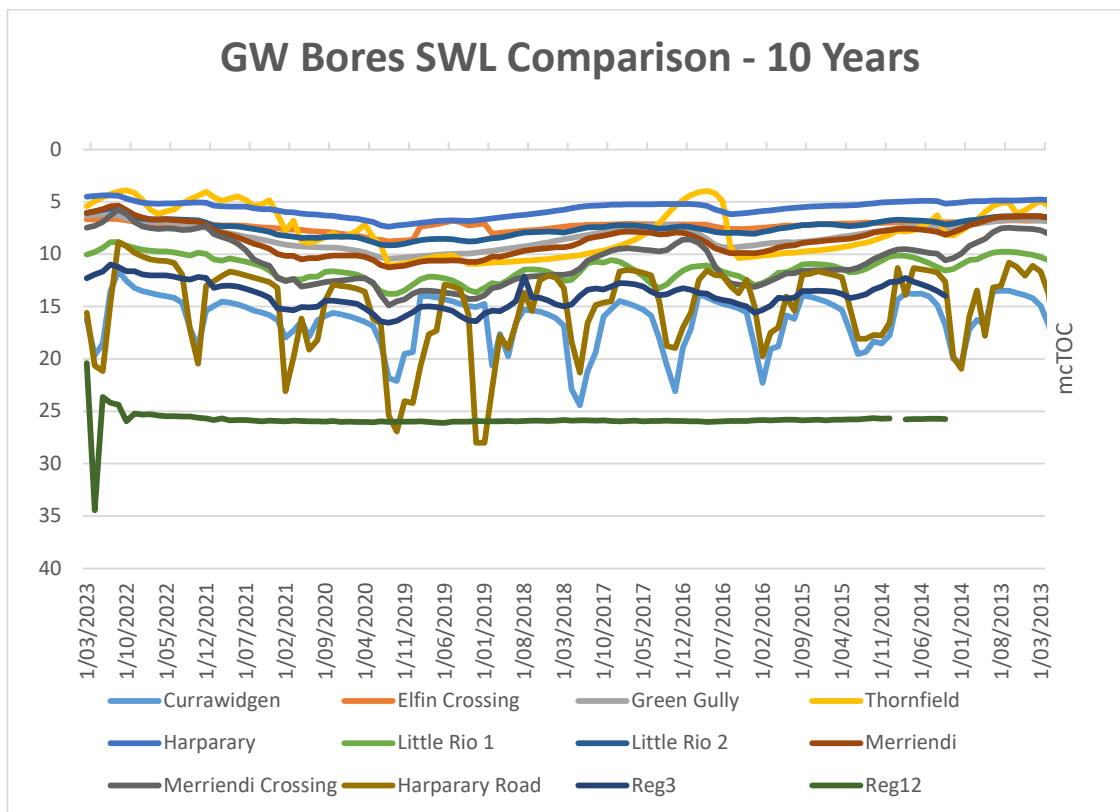
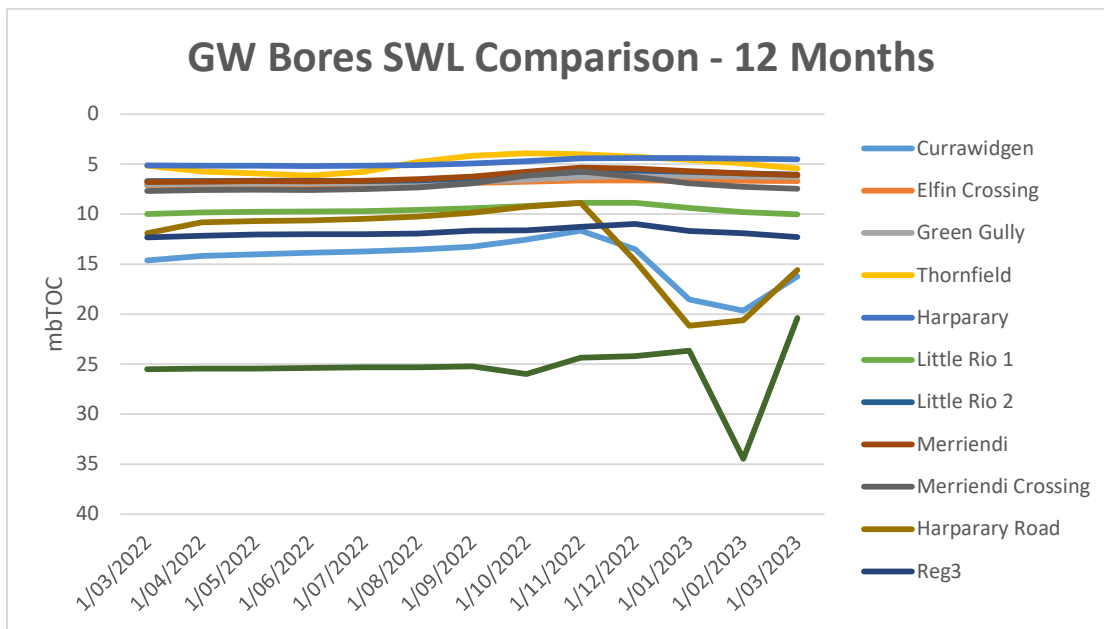
Total Suspended Solids (TSS)

Surface water TSS trends have remained generally consistent with historical results. SW5, SW6, SW7 and SW8 are historically variable as they are located along the Namoi River which is subject to regulated and variable flow regimes.



Regional Groundwater monitoring

Maules Creek Coal Mine monitors regional bores across the region.



Rehabilitation

Progressive rehabilitation works are ongoing. MCC is on track to complete 20ha of rehabilitation for CY23.

Feral Animal Management

Most recent routine Whitehaven Biodiversity Feral Animal Control program (January to March 2023) results were:

- 637 out of total 935 pigs trapped or baited were from the Maules Offset properties; and,
- 143 out of total 227 Canid Pest Ejectors (1080) consumed were from the Maules Offsets properties.

MCC conducted Feral Animal Control program during February – March 2023.

Weed Control

Spraying of summer dominant exotic grasses such as African Lovegrass, Rhodes Grass, Buffel Grass and Coolatai Grass; and Spraying of Broadleaf weeds such as Noogoora / Bathurst Burr, Thistles, St John's Wort has been completed. Targeted weed control for Prickly Pear, Sweet Rose Briar, Boxthorn and Fleabane is ongoing.

Community Complaints

No complaints were received during the quarter.

Maules Creek Coal Mine Community Consultative Committee Meeting #42

Environmental Monitoring Report For the Q2 period, April – June 2023

Attended Noise Monitoring

Maules Creek Coal (MCC) engaged an independent acoustic consultant to conduct LAeq (15minutes) and LA1 (1 minute) attended noise monitoring at six monitoring locations on site.

A. LAeq, 15minute; GENERATED BY MCCM AGAINST OPERATIONAL DAY NOISE CRITERIA; APRIL – JUNE 2023.

The results show that MCCM is within EPL 20221 compliance limits, that operations did not exceed the applicable LAeq (15minute) criteria of 35dB and the EPA's Noise Policy for Industry compliance guidelines.

Table 1 - April Noise Monitoring

Location	Start Date and Time	Wind		Stability Class	Very enhancing? ¹	Limits, dB ¹		Site levels, dB ²		Exceedances, dB	
		Speed m/s	Direction ³			L _{Aeq,15minute}	L _{Amax}	L _{Aeq,15minute}	L _{Amax}	L _{Aeq,15minute}	L _{Amax}
NM1	27/04/2023 22:30	0.4	251	F	No	35	45	IA	IA	Nil	Nil
NM2	27/04/2023 23:30	0.2	200	F	No	39	45	<20	<20	Nil	Nil
NM3	27/04/2023 23:23	0.5	224	F	No	35	45	<20	<20	Nil	Nil
NM4	27/04/2023 23:00	0.2	122	F	No	35	45	IA	IA	Nil	Nil
NM5	27/04/2023 22:04	0.8	281	F	No	35	45	IA	IA	Nil	Nil
NM6	27/04/2023 23:55	0.5	104	F	No	35	45	IA	IA	Nil	Nil

Notes: 1. Noise limits are adjusted by +5 dB during 'very enhancing meteorological conditions' in accordance with the NPfI.
2. Site-only LAeq,15minute, includes modifying factor penalties if applicable.
3. Degrees magnetic north, "<->" indicates calm conditions.

Table 2 – May Noise Monitoring

Location	Start date and Time	Wind		Stability class	Very enhancing? ¹	Limits, dB ¹		Site levels, dB ²		Exceedances, dB	
		Speed m/s	Direction ³			L _{Aeq,15minute}	L _{Amax}	L _{Aeq,15minute}	L _{Amax}	L _{Aeq,15minute}	L _{Amax}
NM1	11/05/2023 22:30	0.6	121	F	No	35	45	<20	<20	Nil	Nil
NM2	11/05/2023 23:30	1.0	218	F	No	39	45	IA	IA	Nil	Nil
NM3	12/05/2023 0:22	1.5	170	D	No	35	45	IA	IA	Nil	Nil
NM4	11/05/2023 23:00	0.5	178	F	No	35	45	NM	NM	Nil	Nil
NM5	11/05/2023 22:00	0.6	242	F	No	35	45	IA	IA	Nil	Nil
NM6	11/05/2023 23:55	1.1	197	F	No	35	45	IA	IA	Nil	Nil

Notes: 1. Noise limits are adjusted by +5 dB during 'very enhancing meteorological conditions' in accordance with the NPfI.
2. Site-only LAeq,15minute, includes modifying factor penalties if applicable.
3. Degrees magnetic north, "<->" indicates calm conditions.

Table 3 – June Noise Monitoring

Location	Start date and Time	Wind		Stability class	Very enhancing? ¹	Limits, dB ¹		Site levels, dB ²		Exceedances, dB	
		Speed m/s	Direction ³			L _{Aeq,15minute}	L _{Amax}	L _{Aeq,15minute}	L _{Amax}	L _{Aeq,15minute}	L _{Amax}
NM1	7/06/2023 22:30	0.4	128	F	No	35	45	IA	IA	Nil	Nil
NM2	7/06/2023 23:30	0.3	300	F	No	39	45	IA	IA	Nil	Nil
NM3	7/06/2023 23:22	0.3	306	F	No	35	45	IA	IA	Nil	Nil
NM4	7/06/2023 23:00	0.4	197	F	No	35	45	IA	IA	Nil	Nil
NM5	7/06/2023 22:00	0.6	136	F	No	35	45	IA	IA	Nil	Nil
NM6	7/06/2023 23:54	0.8	243	F	No	35	45	IA	IA	Nil	Nil

Notes: 1. Noise limits are adjusted by +5 dB during 'very enhancing meteorological conditions' in accordance with the NPfl.
2. Site-only L_{Aeq,15minute}, includes modifying factor penalties if applicable.
3. Degrees magnetic north, "-" indicates calm conditions.

Wind Direction during Attended Monitoring

Wind direction data is collected from the Maule's Creek Coal Mine (MCCM) Automated Weather Station (AWS). Wind data for the duration of the attended monitoring assessment, recorded at the MCCM AWS is presented in the table below.

Table 4 - Prevailing Wind Direction

Monitoring Date	Prevailing Wind Direction
April	SSW
May	S
June	SW

Blast Monitoring

There was 29 blasts at MCCM during Q2 2023. All blast monitoring results recorded within the reporting period have complied with applicable overpressure and ground vibration limits specified in the respective approvals.

Table 5 – Blast Results Summary

Parameter	Units	Frequency	Number	Average	Max	100% Limit	Exceedance (Yes / No)
Noise	dB (Lin Peak)	All	29	92.03	108.8	120	No
Vibration	mm/s		29	0.16	1.29	10	No

Air Quality

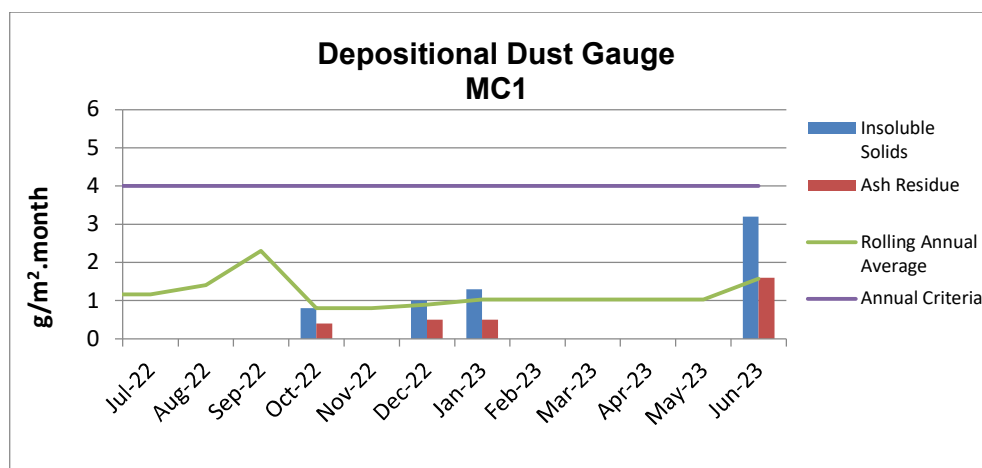
A. Total Depositional Dust

The 12 monthly rolling annual average remains below the relevant Project Approval (PA 10_0138) criteria of 4g/m²/month for the respective monitoring points.

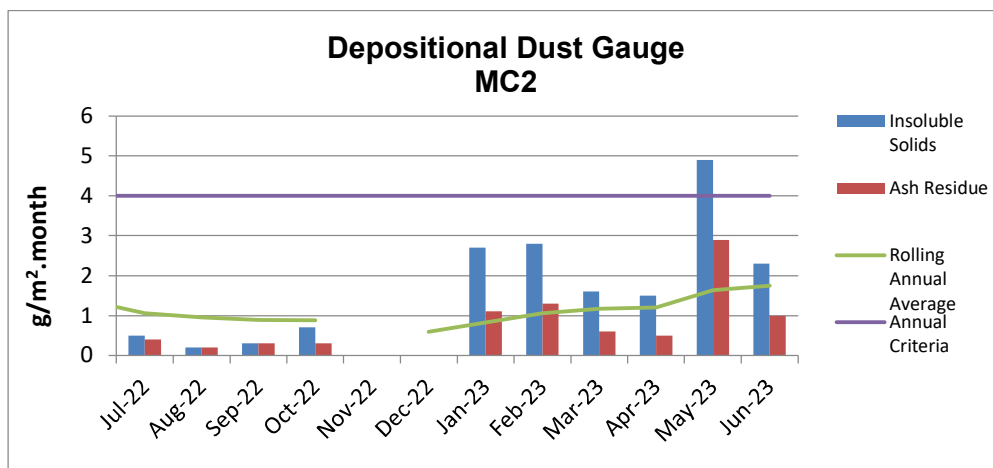
Table 6 – Depositional Dust Gauge Results [g/m²/month]

MONTH	MC1	MC2	MC3	MC4
April	7.7 ^c	1.5	2.8	13.8 ^c
May	5.9 ^c	4.9	4.8	1.0
June	3.2	2.3	2.0	1.0
12 MONTH ROLLING AVERAGE	1.6	1.8	2.5	1.2

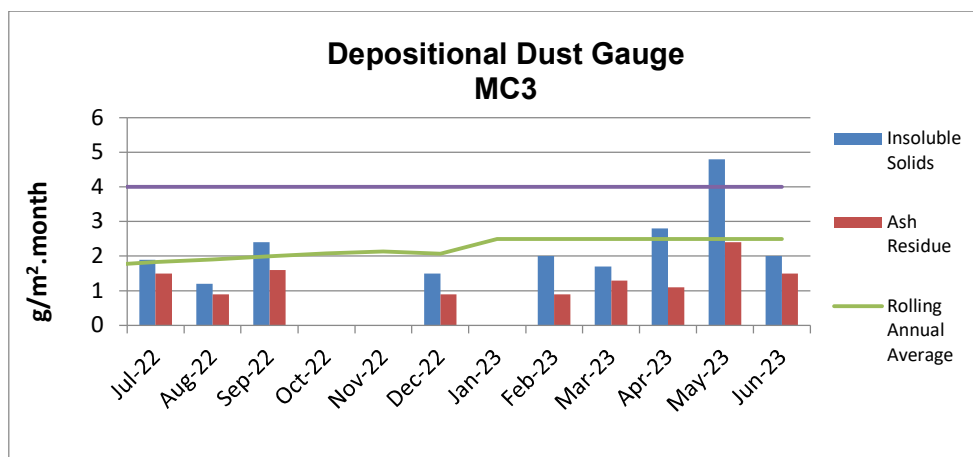
^c samples contaminated by bird dropping, decomposed insects or vegetable matter.



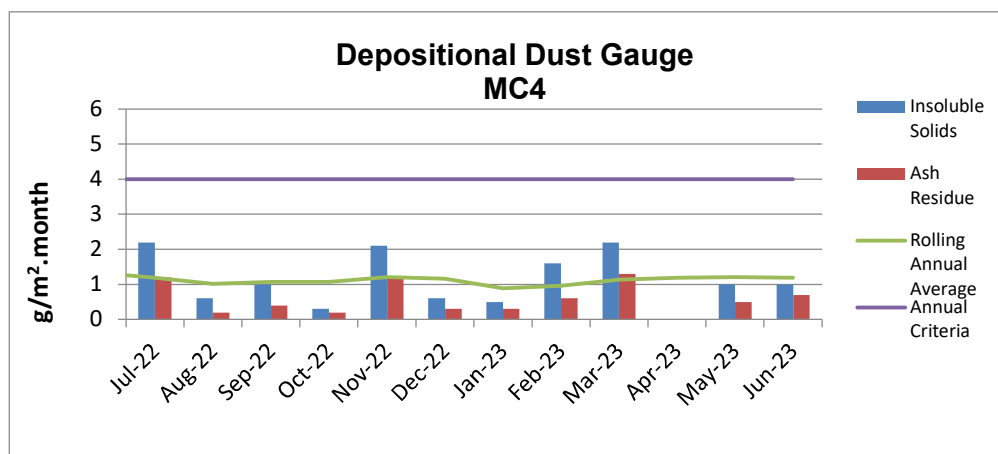
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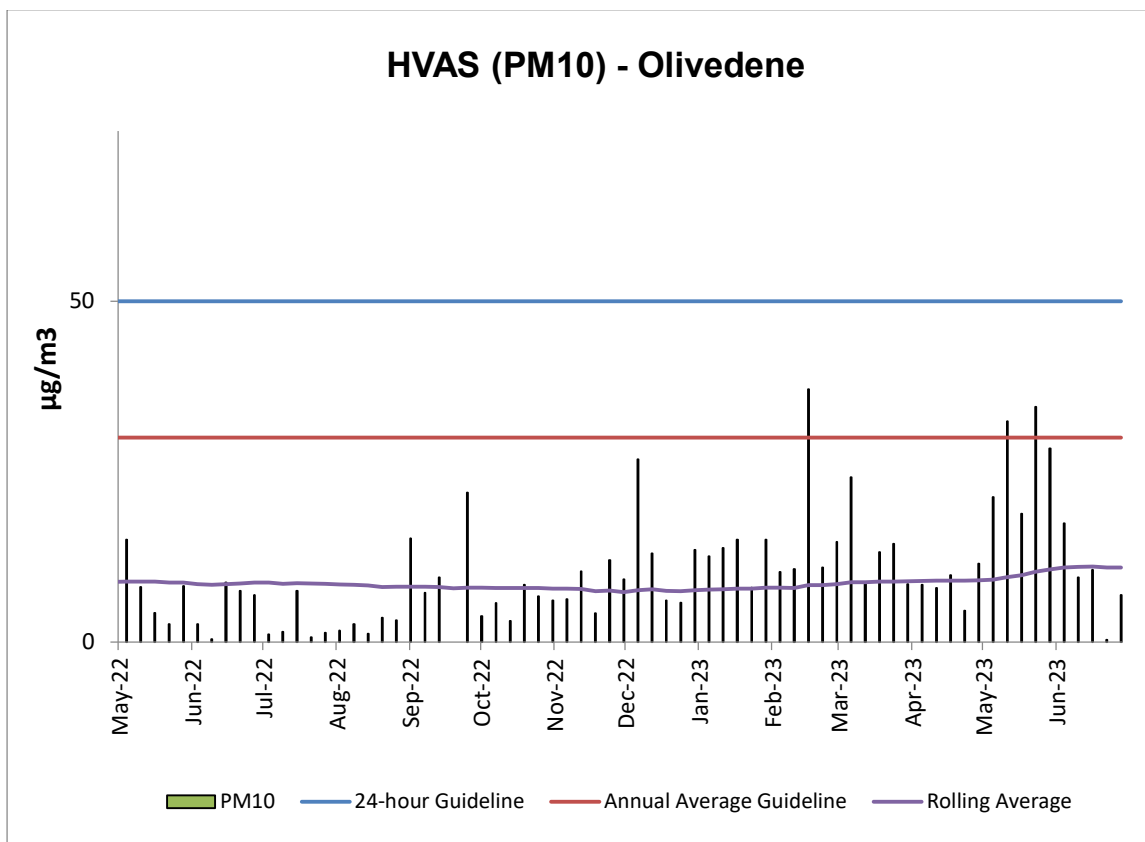


* Blank cells indicate sample periods where the sample has been contaminated and excluded from the results tables due to contaminated material (insect larvae, bird droppings, vegetation etc.).

B. High Volume Air Sampling (HVAS)

The HVAS monitor is located on the property 'Olivedene,' a mine owned property on Therribri Road. During past 12 months, there have been no exceedances of the 24-hour average of 50 $\mu\text{g}/\text{m}^3$.

HVAS PM₁₀ Rolling Annual Average as of June was **11.0 $\mu\text{g}/\text{m}^3$** , which is below the Annual Average Guideline of 30 $\mu\text{g}/\text{m}^3$.



C. TEOM - PM10 Results

The annual rolling average for PM10 at the Maules Creek Coal TEOM1 was **8.1 $\mu\text{g}/\text{m}^3$** , which is below the Project Approval annual average criteria of **30 $\mu\text{g}/\text{m}^3$** as shown in the following figure. There have been no exceedances of the 24-hour average for Q2 2023.

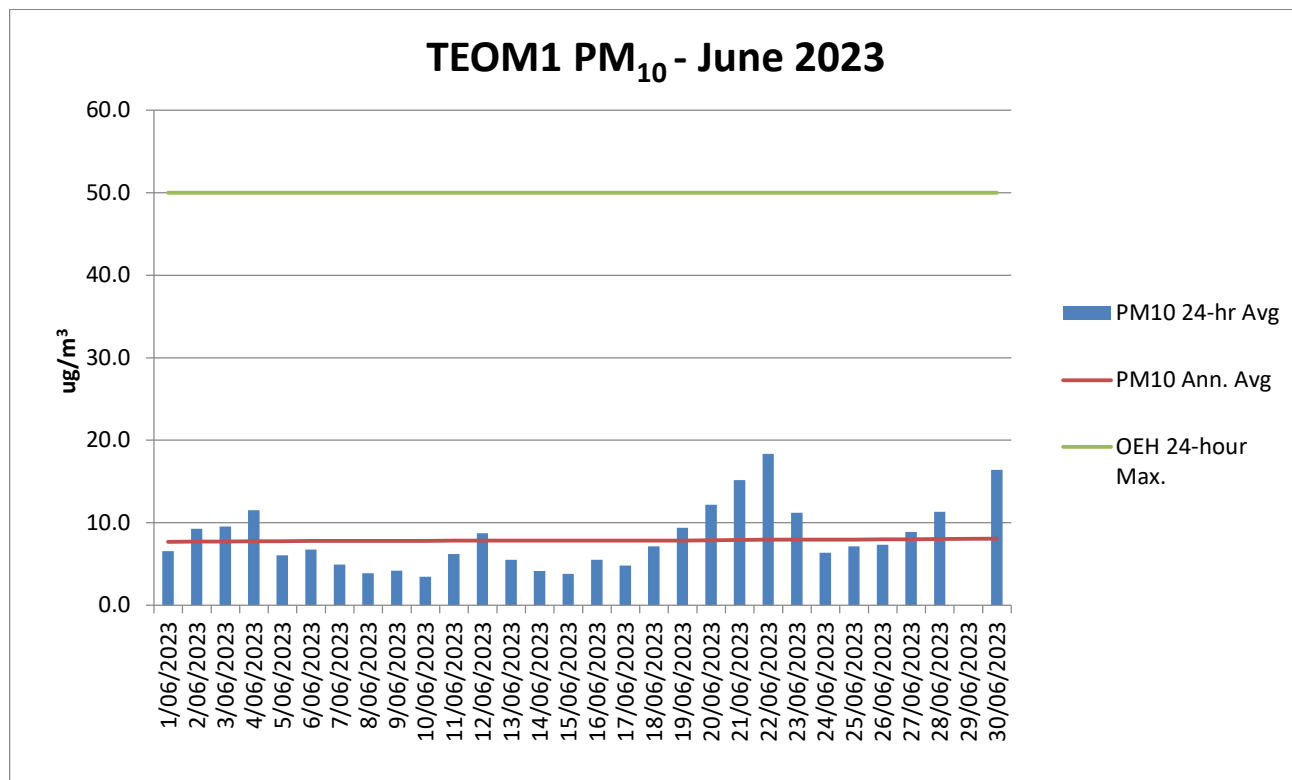


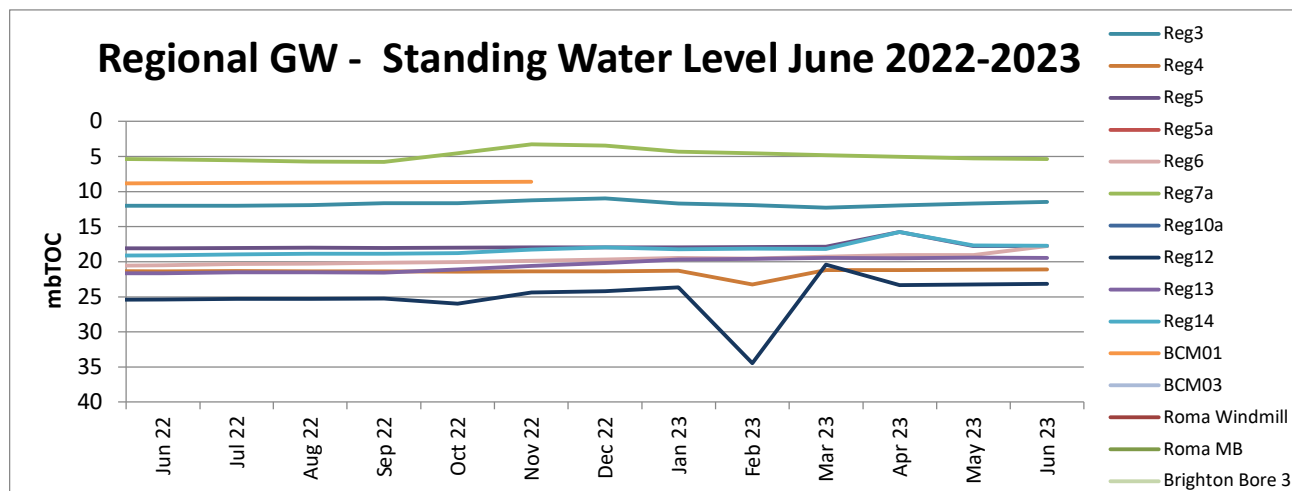
Figure 1 - TEOM Result – Particulate Matter PM₁₀ $\mu\text{g}/\text{m}^3$

* Blank columns indicate sample periods where there was either power outage, maintenance or other related causes.

Water Monitoring

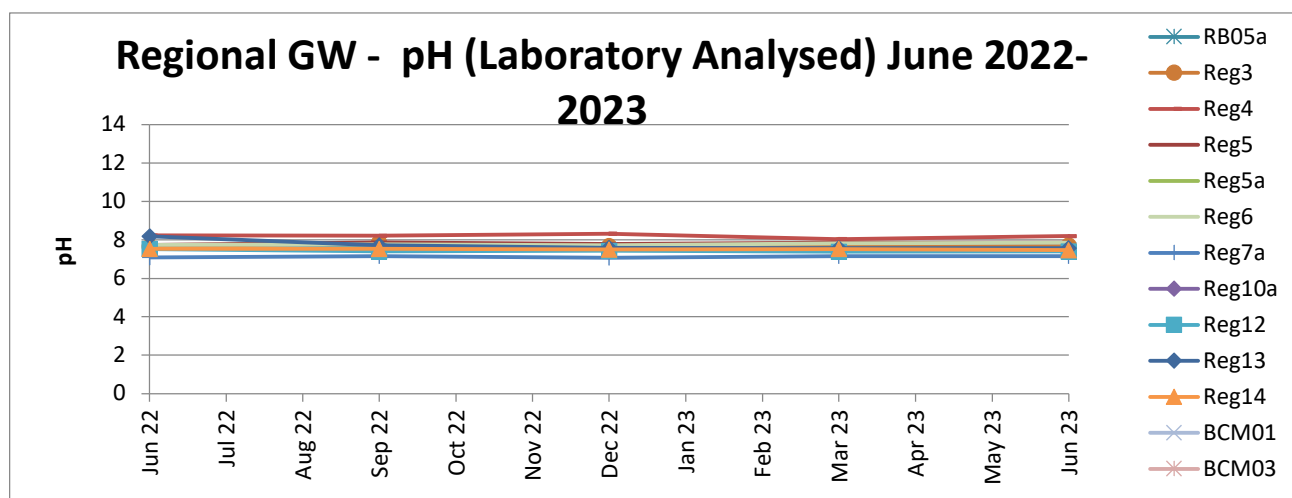
A. Groundwater

Groundwater monitoring results in open standpipe piezometers show levels to be relatively stable. The Regional bores were installed between Q4, 2013 and Q1, 2014. BCM01, BCM03, Reg10 are shallow bores which have remained dry since construction in 2013.



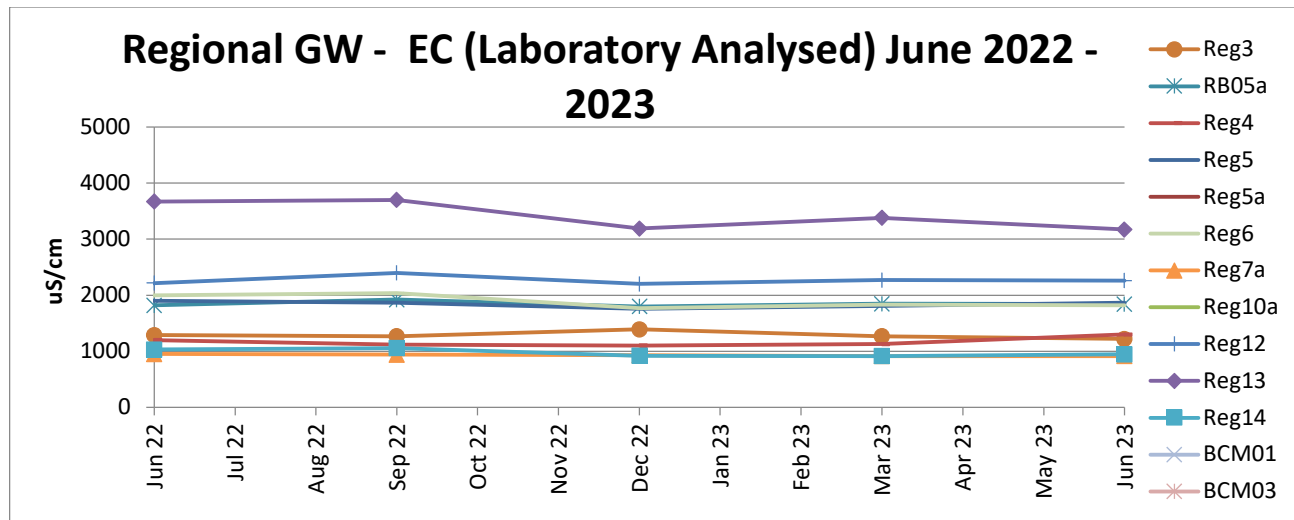
Acidity / Alkalinity (pH)

Over the past twelve months pH readings across the regional bores have remained static with very little fluctuation.



Electrical Conductivity

Laboratory Electrical Conductivity (EC) levels are all within historic groundwater EC range of 500 $\mu\text{S}/\text{cm}$ to 2,500 $\mu\text{S}/\text{cm}$, with the exception of monitoring bore Reg13 which has a historic groundwater EC range of 2,500 $\mu\text{S}/\text{cm}$ to 4,100 $\mu\text{S}/\text{cm}$. Within the last twelve months EC has remained static.

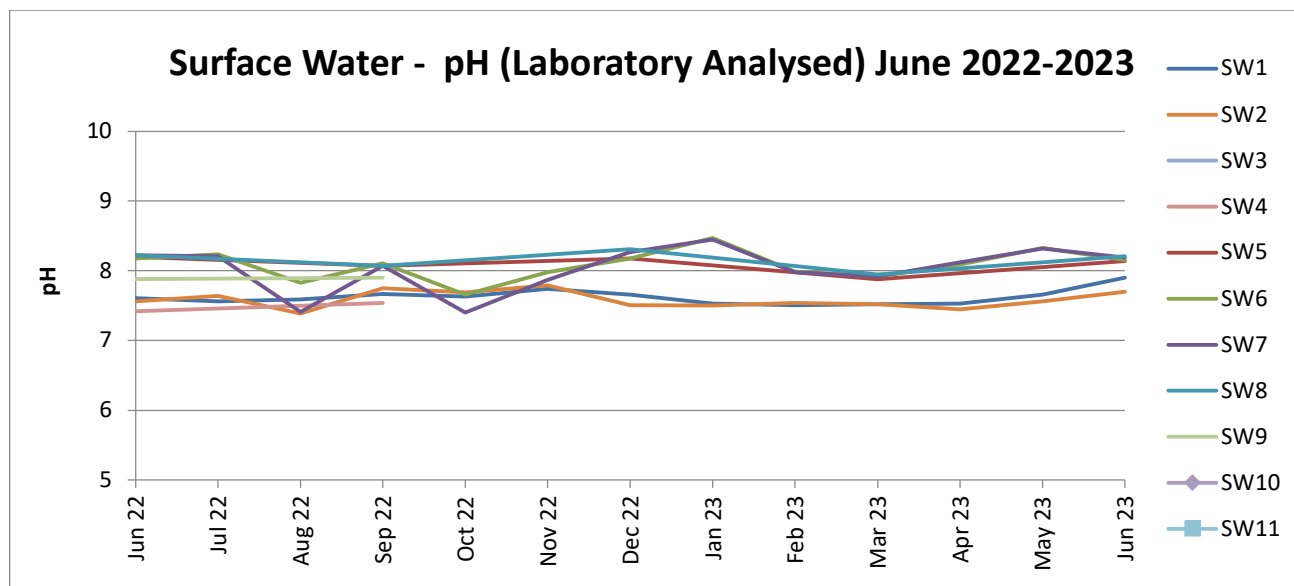


B. Surface Water – Creeks and Rivers

Routine surface water monitoring is conducted in surrounding creeks and rivers on a monthly basis. Results for parameters including pH, EC and Total Suspended Solids (TSS) are shown in the figures below. There are eleven surface water monitoring points, of which a maximum of six sites were able to be sampled during Q2 2023.

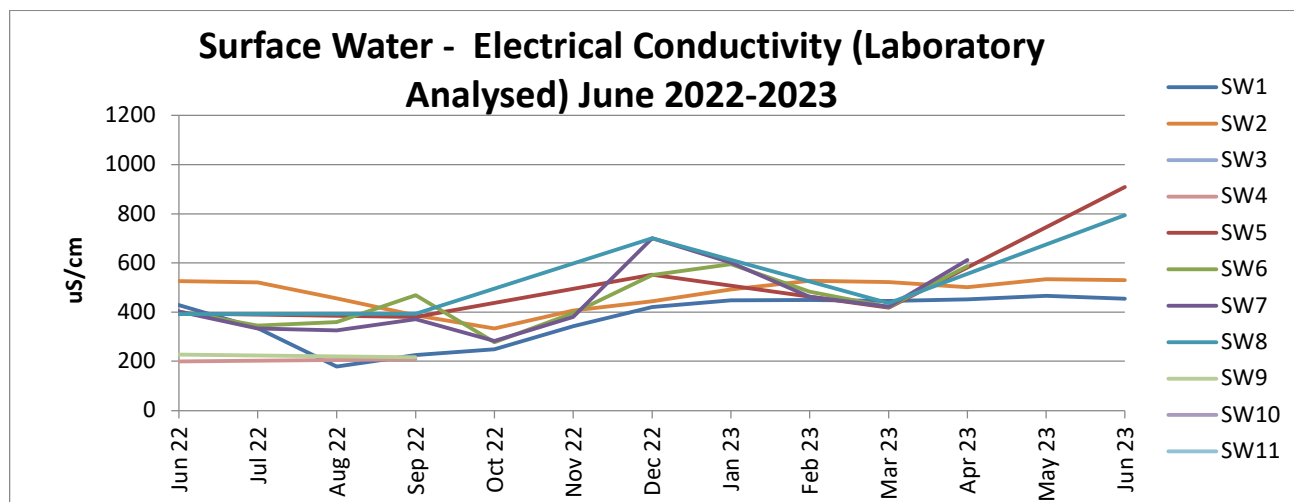
Acidity / Alkalinity (pH)

Monitoring results for pH in creeks and rivers surrounding MCCM are all trending within the ANZECC range for Irrigation, Ecosystem Health and Recreation.



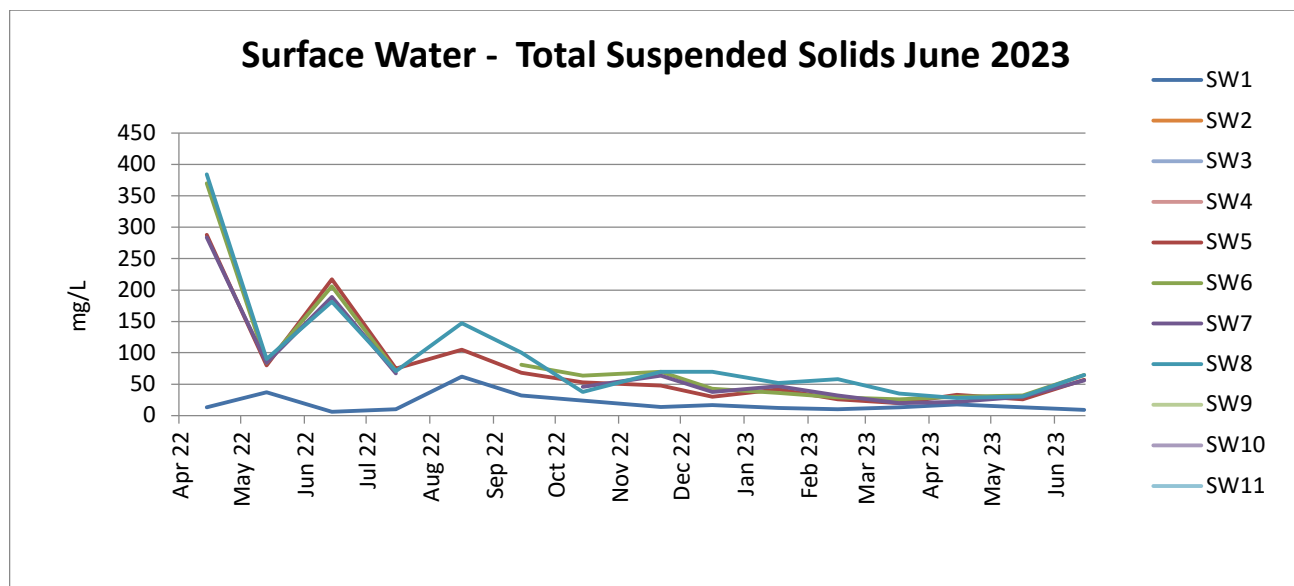
Electrical Conductivity

Surface water EC trends have remained consistent with SW5, SW6, SW7 and SW8 all historically variable. SW5, SW6, SW7 and SW8 are points along the Namoi River which are subject to regulated and variable flow regimes.



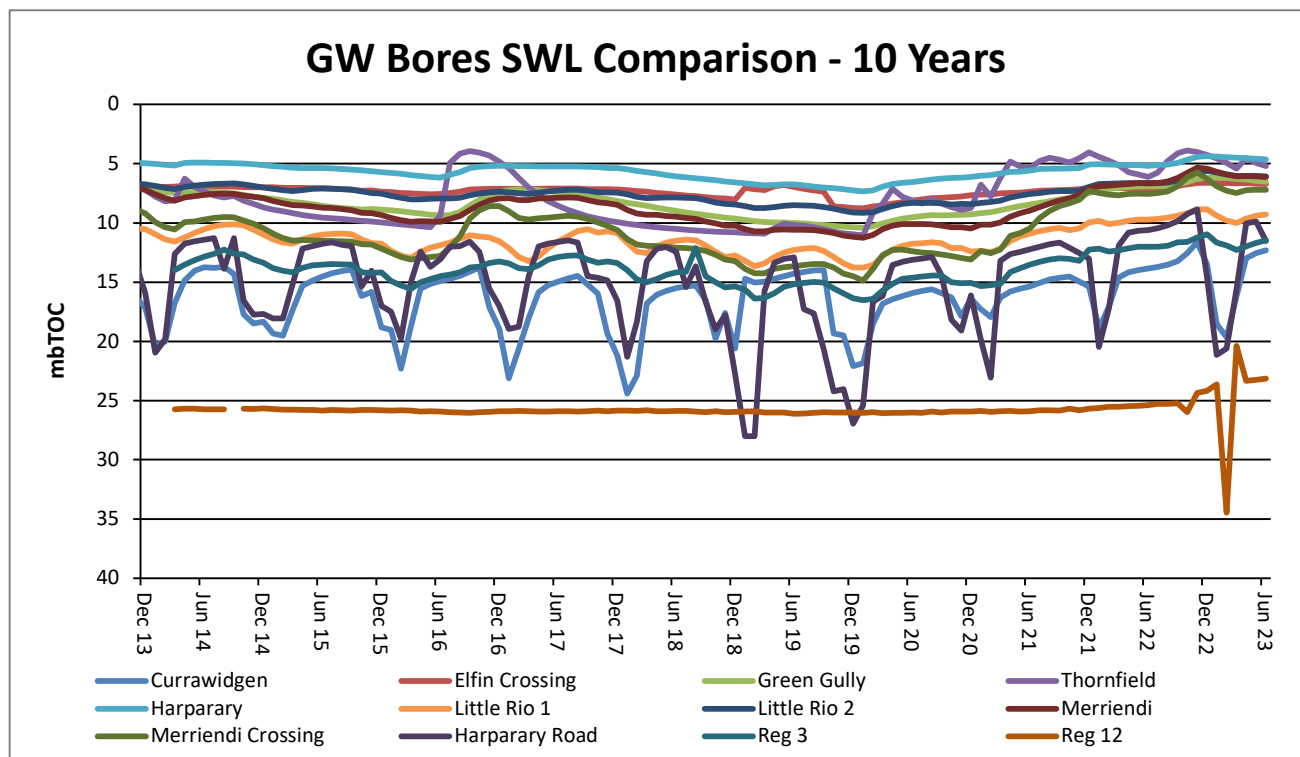
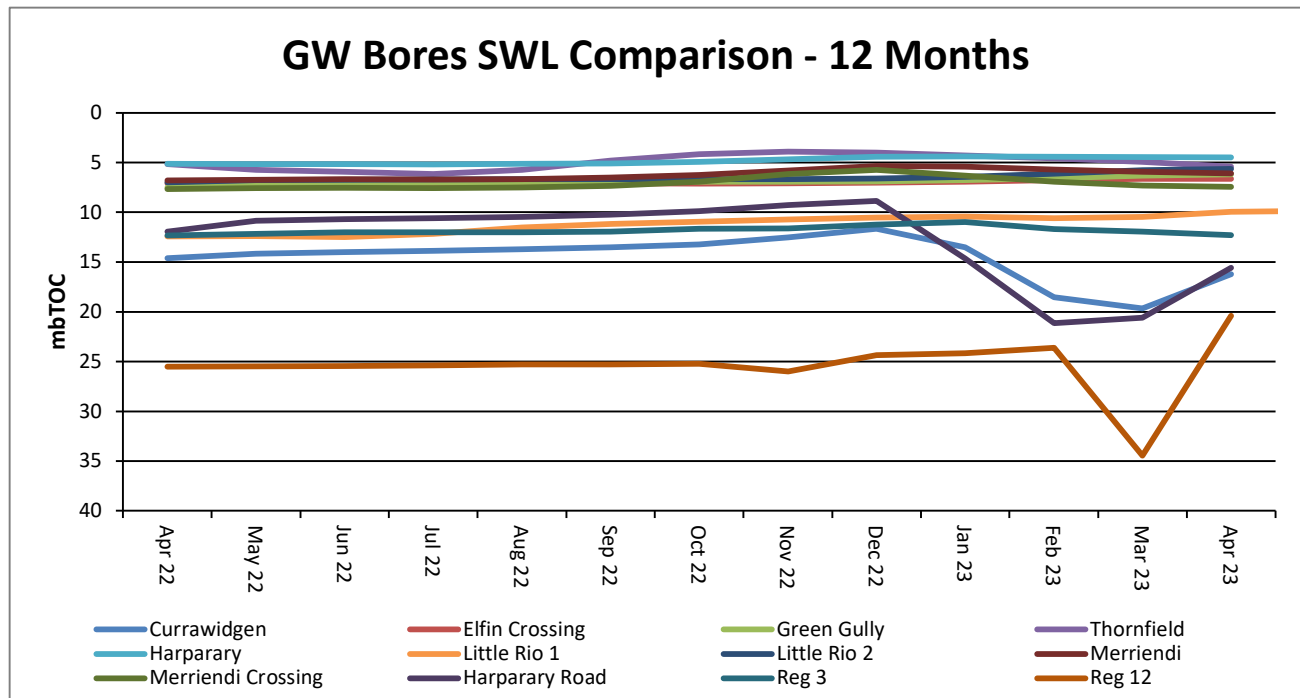
Total Suspended Solids (TSS)

Surface water TSS trends have remained generally consistent with historical results. SW5, SW6, SW7 and SW8 are historically variable as they are located along the Namoi River which is subject to regulated and variable flow regimes. The Q2 results have stabilised on the back of significant rainfall events in Q4 2022 and Q1 2023, as demonstrated in the graph below.



Regional Groundwater monitoring

Maules Creek Coal Mine monitors regional bores across the region.



Rehabilitation

Progressive rehabilitation works are ongoing. MCC is on track to complete 20.9ha of rehabilitation for CY23.

Feral Animal Management

The proposed MCC feral animal management control program has been updated to accommodate the increase in feral species across the region. Additional waves of baiting and trapping are to be implemented throughout Q3 and Q4.

Community Complaints

No complaints were received during Q2 2023.

Maules Creek Coal Mine Community Consultative Committee Meeting #43

Environmental Monitoring Report For the Q3 period, July – September 2023

Attended Noise Monitoring

Maules Creek Coal (MCC) engaged an independent acoustic consultant to conduct LAeq (15minutes) and LA1 (1 minute) attended noise monitoring at six monitoring locations on site.

A. LAeq, 15minute; GENERATED BY MCCM AGAINST OPERATIONAL DAY NOISE CRITERIA; JULY – SEPTEMBER 2023.

The results show that MCCM is within EPL 20221 compliance limits, that operations did not exceed the applicable LAeq (15minute) criteria of 35dB and the EPA's Noise Policy for Industry compliance guidelines.

Table 1 - July Noise Monitoring

Location	Start date and Time	Wind		Stability class	Very enhancing? ¹	Limits, dB ¹		Site levels, dB ²		Exceedances, dB	
		Speed m/s	Direction ³			L _{Aeq,15minute}	L _{Amax}	L _{Aeq,15minute}	L _{Amax}	L _{Aeq,15minute}	L _{Amax}
NM1	5/07/2023 22:30	0.4	45	F	No	35	45	<20	<20	Nil	Nil
NM2	5/07/2023 23:30	0.3	148	F	No	39	45	IA	IA	Nil	Nil
NM3	6/07/2023 00:23	0.2	39	F	No	35	45	IA	IA	Nil	Nil
NM4	5/07/2023 23:02	1.2	223	F	No	35	45	IA	IA	Nil	Nil
NM5	5/07/2023 22:00	0.1	278	F	No	35	45	IA	IA	Nil	Nil
NM6	5/07/2023 23:58	0.3	84	F	No	35	45	IA	IA	Nil	Nil

Notes: 1. Noise limits are adjusted by +5 dB during 'very enhancing meteorological conditions' in accordance with the NPfI.
2. Site-only LAeq,15minute, includes modifying factor penalties if applicable.
3. Degrees magnetic north, "-" indicates calm conditions.

Table 2 – August Noise Monitoring

Location	Start date and Time	Wind		Stability class	Very enhancing? ¹	Limits, dB ¹		Site levels, dB ²		Exceedances, dB	
		Speed m/s	Direction ³			L _{Aeq,15minute}	L _{Amax}	L _{Aeq,15minute}	L _{Amax}	L _{Aeq,15minute}	L _{Amax}
NM1	3/08/2023 22:30	0.4	357	F	No	35	45	IA	IA	Nil	Nil
NM2	3/08/2023 23:30	0.3	190	F	No	39	45	<20	<20	Nil	Nil
NM3	4/08/2023 00:21	0.6	35	F	No	35	45	<20	<20	Nil	Nil
NM4	3/08/2023 23:00	0.5	302	F	No	35	45	IA	IA	Nil	Nil
NM5	3/08/2023 22:00	0.4	63	F	No	35	45	IA	IA	Nil	Nil
NM6	3/08/2023 23:55	0.3	87	F	No	35	45	IA	IA	Nil	Nil

Notes: 1. Noise limits are adjusted by +5 dB during 'very enhancing meteorological conditions' in accordance with the NPfI.
2. Site-only LAeq,15minute, includes modifying factor penalties if applicable.
3. Degrees magnetic north, "-" indicates calm conditions.

Table 3 – September Noise Monitoring

Location	Start date and Time	Wind		Stability class	Very enhancing? ¹	Limits, dB ¹		Site levels, dB ²		Exceedances, dB	
		Speed m/s	Direction ³			L _{Aeq,15minute}	L _{Amax}	L _{Aeq,15minute}	L _{Amax}	L _{Aeq,15minute}	L _{Amax}
NM1	18/09/2023 22:31	0.4	76	F	No	35	45	IA	IA	Nil	Nil
NM2	18/09/2023 23:30	0.2	160	F	No	39	45	IA	IA	Nil	Nil
NM3	18/09/2023 23:53	0.2	162	F	No	35	45	<25	<25	Nil	Nil
NM4	18/09/2023 23:00	0.4	94	F	No	35	45	IA	IA	Nil	Nil
NM5	18/09/2023 22:00	0.2	149	F	No	35	45	IA	IA	Nil	Nil
NM6	18/09/2023 23:55	0.2	81	F	No	35	45	IA	IA	Nil	Nil

Notes: 1. Noise limits are adjusted by +5 dB during 'very enhancing meteorological conditions' in accordance with the NPfl.
2. Site-only L_{Aeq,15minute}, includes modifying factor penalties if applicable.
3. Degrees magnetic north, "<->" indicates calm conditions.

Wind Direction during Attended Monitoring

Wind direction data is collected from the Maule's Creek Coal Mine (MCCM) Automated Weather Station (AWS). Wind data for the duration of the attended monitoring assessment, recorded at the MCCM AWS is presented in the table below.

Table 4 - Prevailing Wind Direction

Monitoring Date	Prevailing Wind Direction
July	S
August	ESE
September	ESE

Blast Monitoring

There was 32 blasts at MCCM during Q3 2023. All blast monitoring results recorded within the reporting period have complied with applicable overpressure and ground vibration limits specified in the respective approvals.

Table 5 – Blast Results Summary

Parameter	Units	Frequency	Number	Average	Max	100% Limit	Exceedance (Yes / No)
Noise	dB (Lin Peak)	All	32	92.77	117.4	120	No
Vibration	mm/s		32	0.15	0.80	10	No

Air Quality

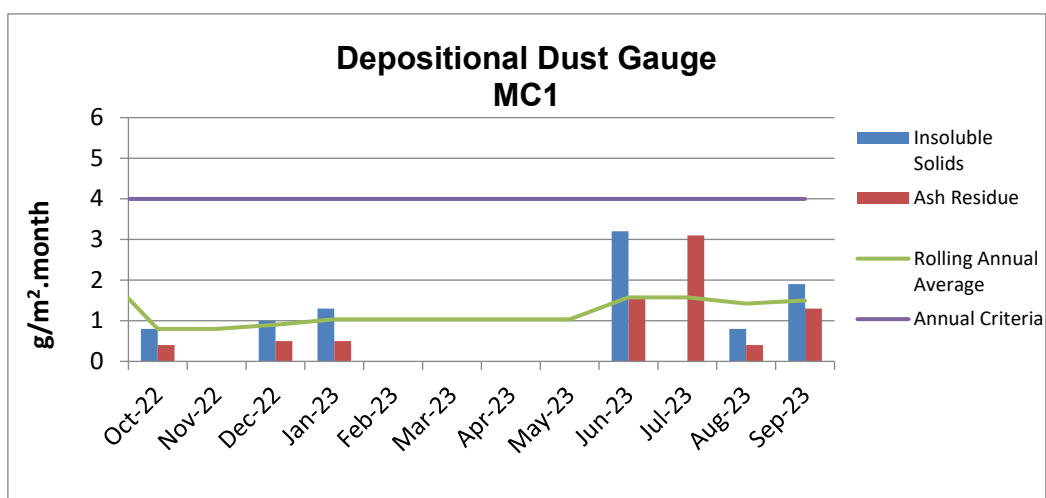
A. Total Depositional Dust

The 12 monthly rolling annual average remains below the relevant Project Approval (PA 10_0138) criteria of 4g/m²/month for the respective monitoring points.

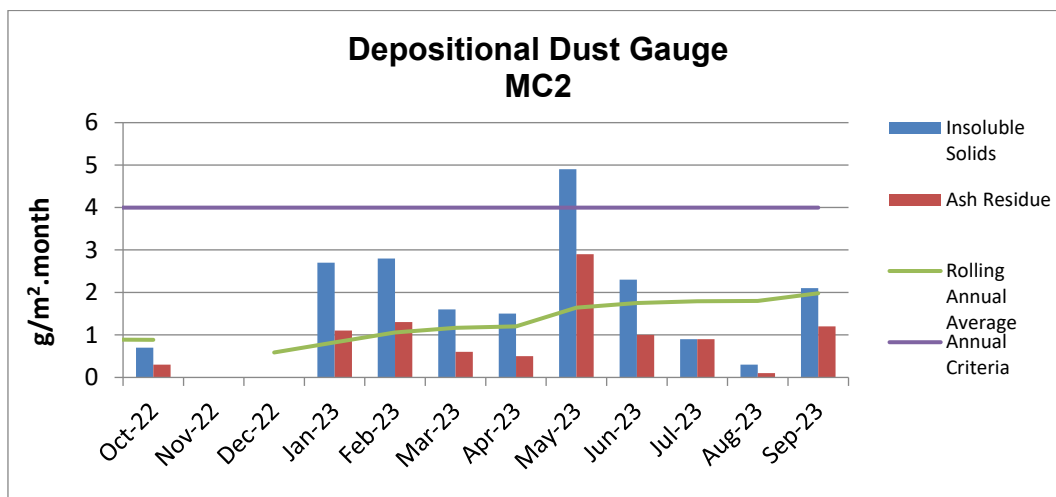
Table 6 – Depositional Dust Gauge Results [g/m²/month]

MONTH	MC1	MC2	MC3	MC4
July	5.1c	0.9	0.6	3.3
August	0.8	0.3	0.4	0.1
September	1.9	2.1	1.8	0.6
12 MONTH ROLLING AVERAGE	1.5	2.0	2.5	1.2

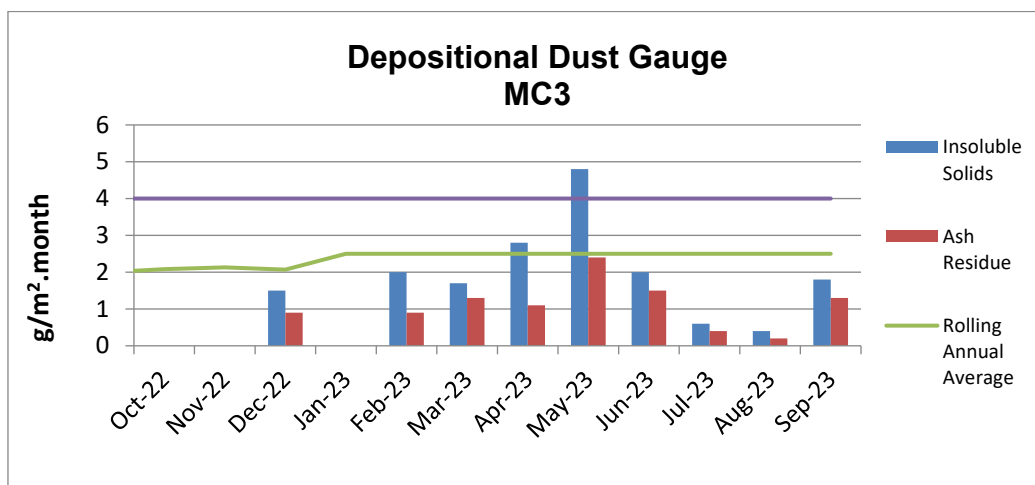
^c samples contaminated by bird dropping, decomposed insects or vegetable matter.



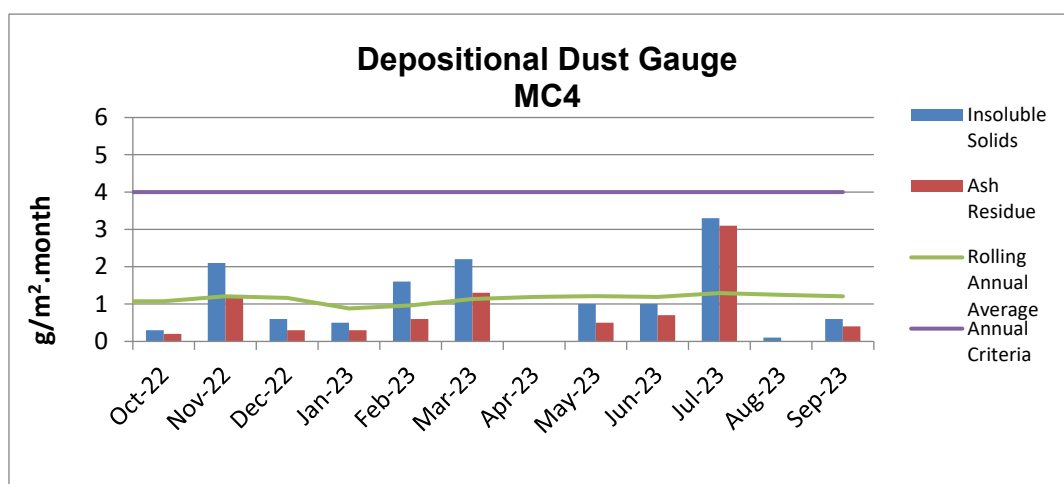
* Blank cells indicate sample periods where the sample has been contaminated and excluded from the results tables due to contaminated material (insect larvae, bird droppings, vegetation etc.).



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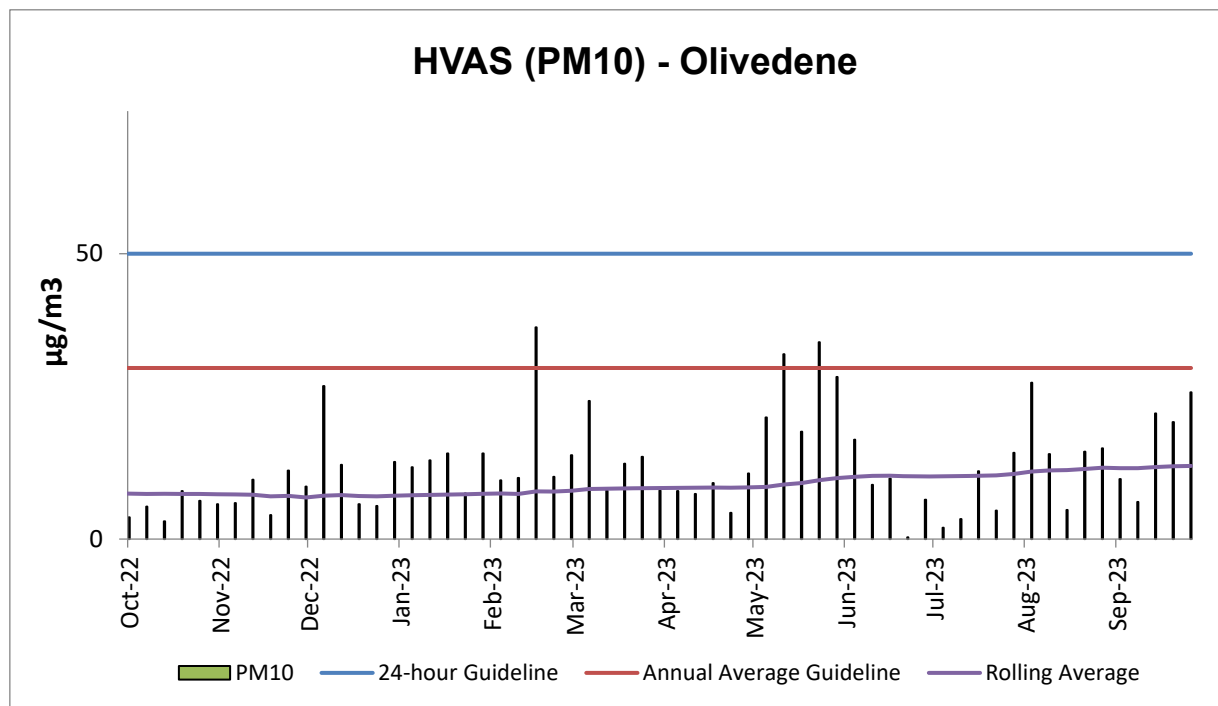


* Blank cells indicate sample periods where the sample has been contaminated and excluded from the results tables due to contaminated material (insect larvae, bird droppings, vegetation etc.).

B. High Volume Air Sampling (HVAS)

The HVAS monitor is located on the property 'Olivedene,' a mine owned property on Therribri Road. During past 12 months, there have been no exceedances of the 24-hour average of 50 $\mu\text{g}/\text{m}^3$.

HVAS PM₁₀ Rolling Annual Average as of June was **12.8 $\mu\text{g}/\text{m}^3$** , which is below the Annual Average Guideline of 30 $\mu\text{g}/\text{m}^3$.



C. TEOM - PM10 Results

The annual rolling average for PM10 at the Maules Creek Coal TEOM1 was **9.7 $\mu\text{g}/\text{m}^3$** , which is below the Project Approval annual average criteria of **30 $\mu\text{g}/\text{m}^3$** as shown in the following figure. There have been no exceedances of the 24-hour average for Q2 2023.

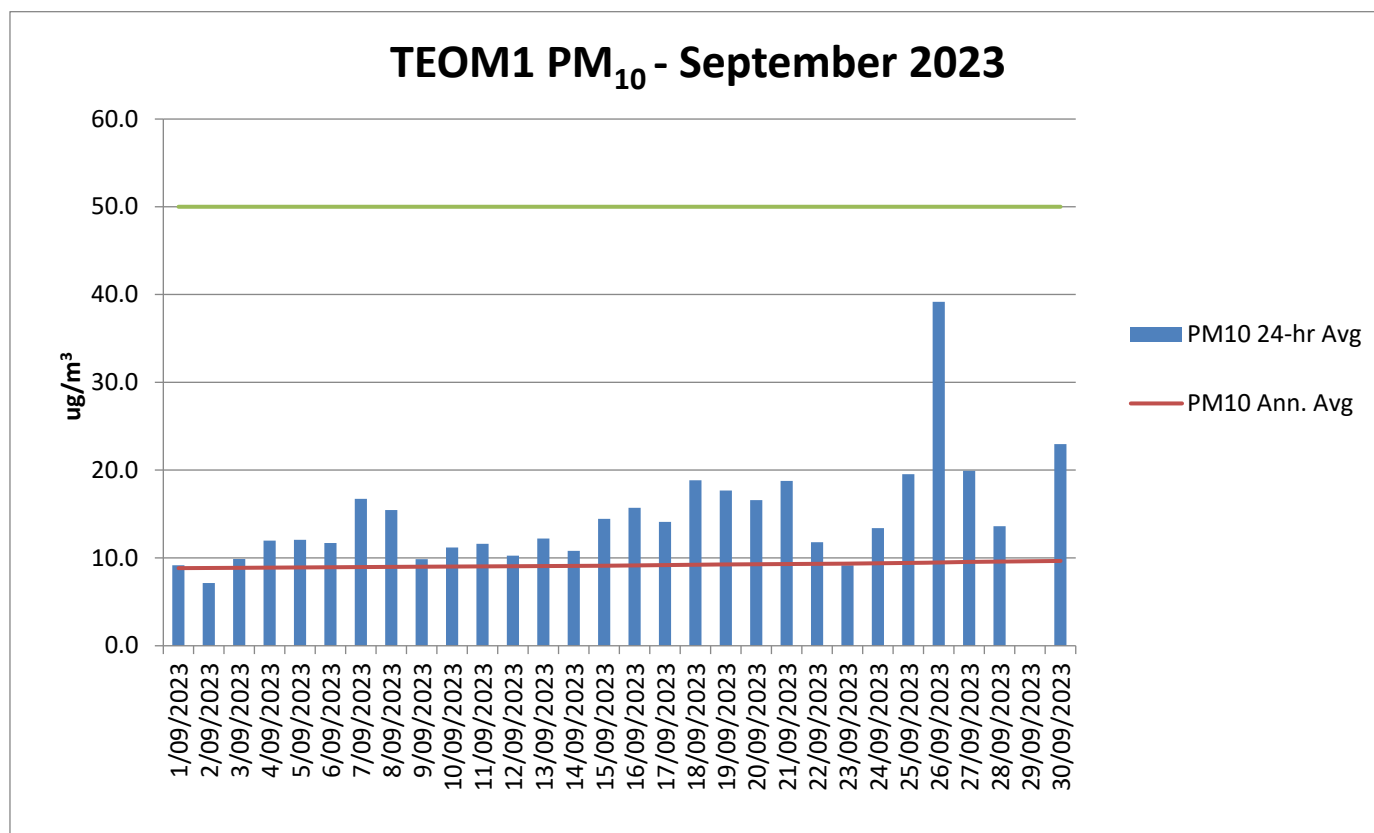


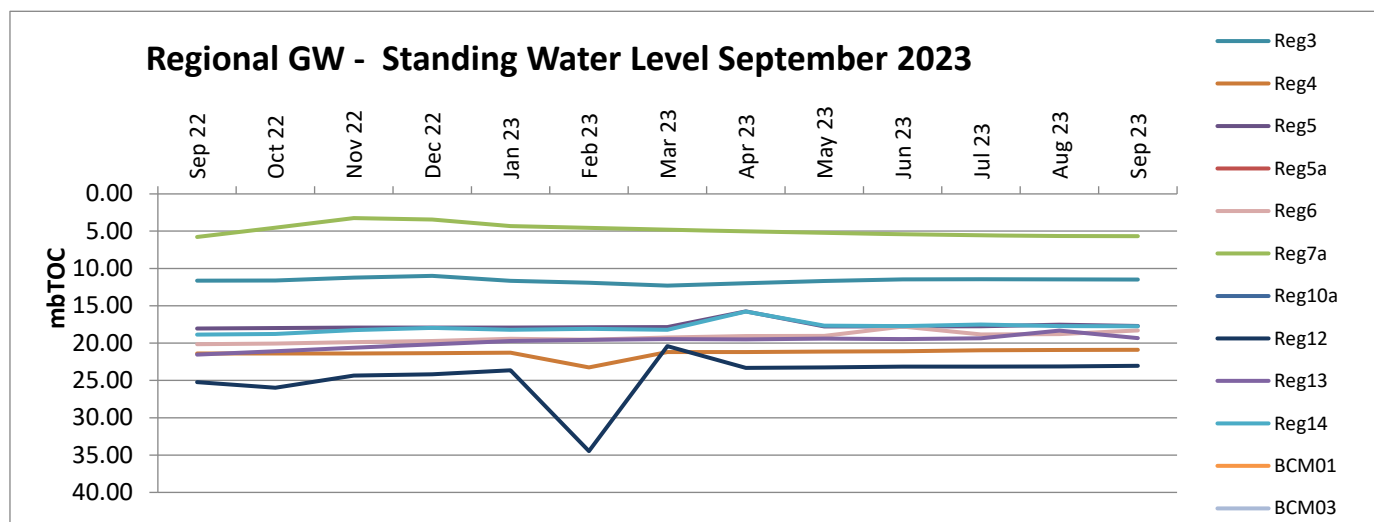
Figure 1 - TEOM Result – Particulate Matter PM₁₀ $\mu\text{g}/\text{m}^3$

* Blank columns indicate sample periods where there was either power outage, maintenance or other related causes.

Water Monitoring

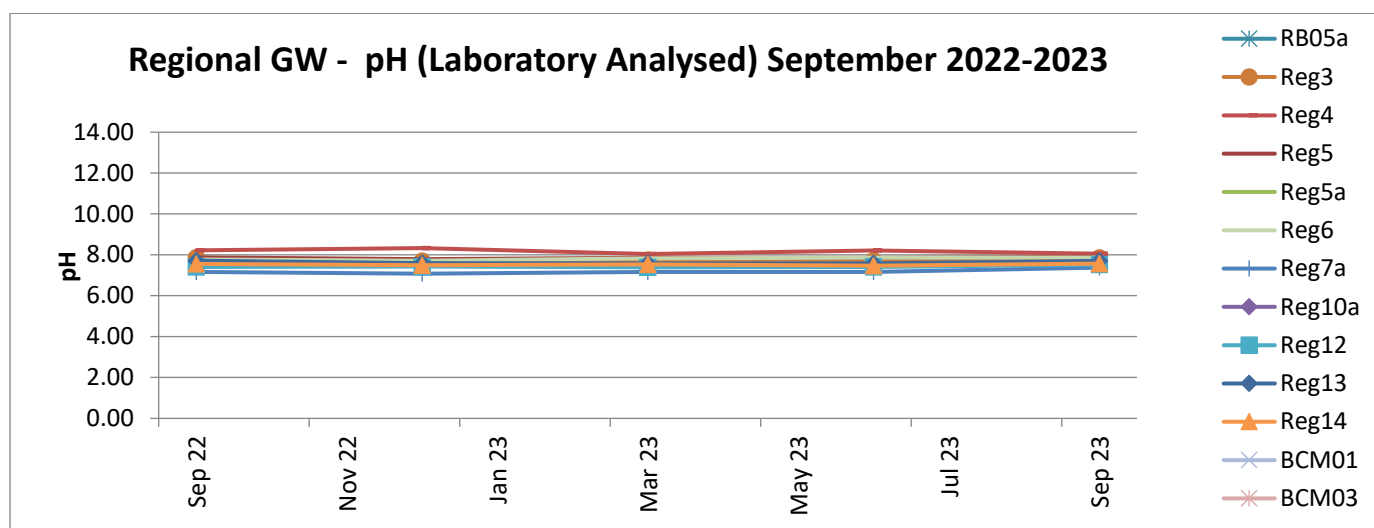
A. Groundwater

Groundwater monitoring results in open standpipe piezometers show levels to be relatively stable. The Regional bores were installed between Q4, 2013 and Q1, 2014. BCM01, BCM03, Reg10 are shallow bores which have remained dry since construction in 2013.



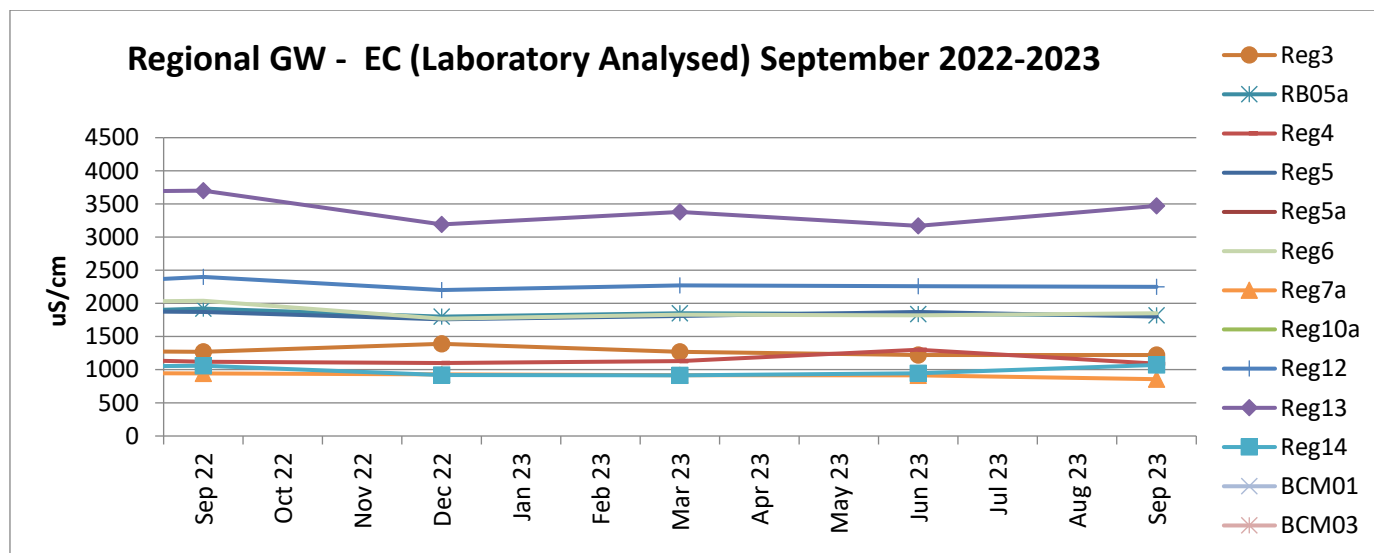
Acidity / Alkalinity (pH)

Over the past twelve months pH readings across the regional bores have remained static with very little fluctuation.



Electrical Conductivity

Laboratory Electrical Conductivity (EC) levels are all within historic groundwater EC range of 500_{µs/cm} to 2,500_{µs/cm}, with the exception of monitoring bore Reg13 which has a historic groundwater EC range of 2,500_{µs/cm} to 4,100_{µs/cm}. Within the last twelve months EC has remained static.

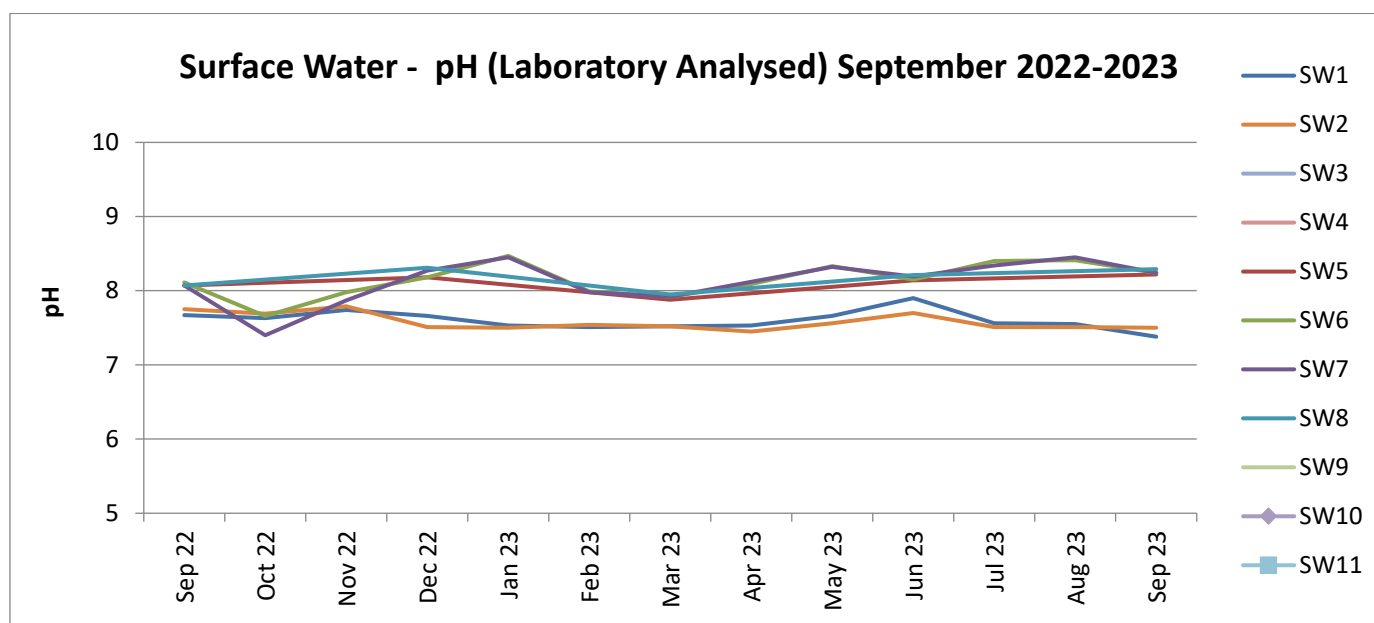


B. Surface Water – Creeks and Rivers

Routine surface water monitoring is conducted in surrounding creeks and rivers on a monthly basis. Results for parameters including pH, EC and Total Suspended Solids (TSS) are shown in the figures below. There are eleven surface water monitoring points, of which a maximum of six sites were able to be sampled during Q3 2023.

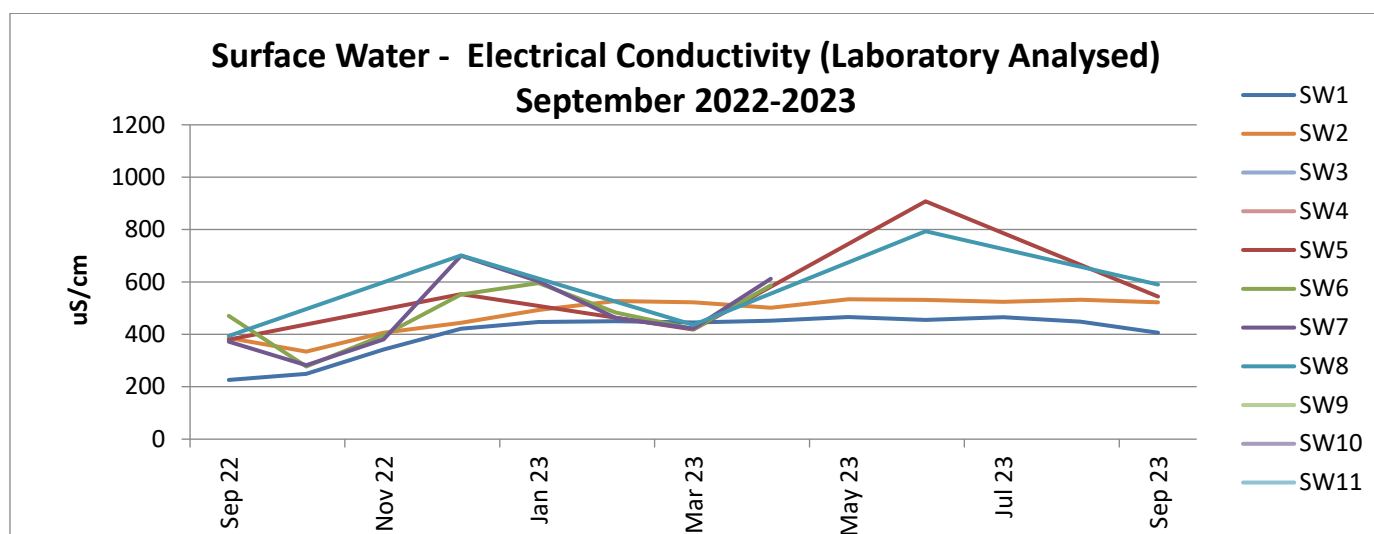
Acidity / Alkalinity (pH)

Monitoring results for pH in creeks and rivers surrounding MCCM are all trending within the ANZECC range for Irrigation, Ecosystem Health and Recreation.



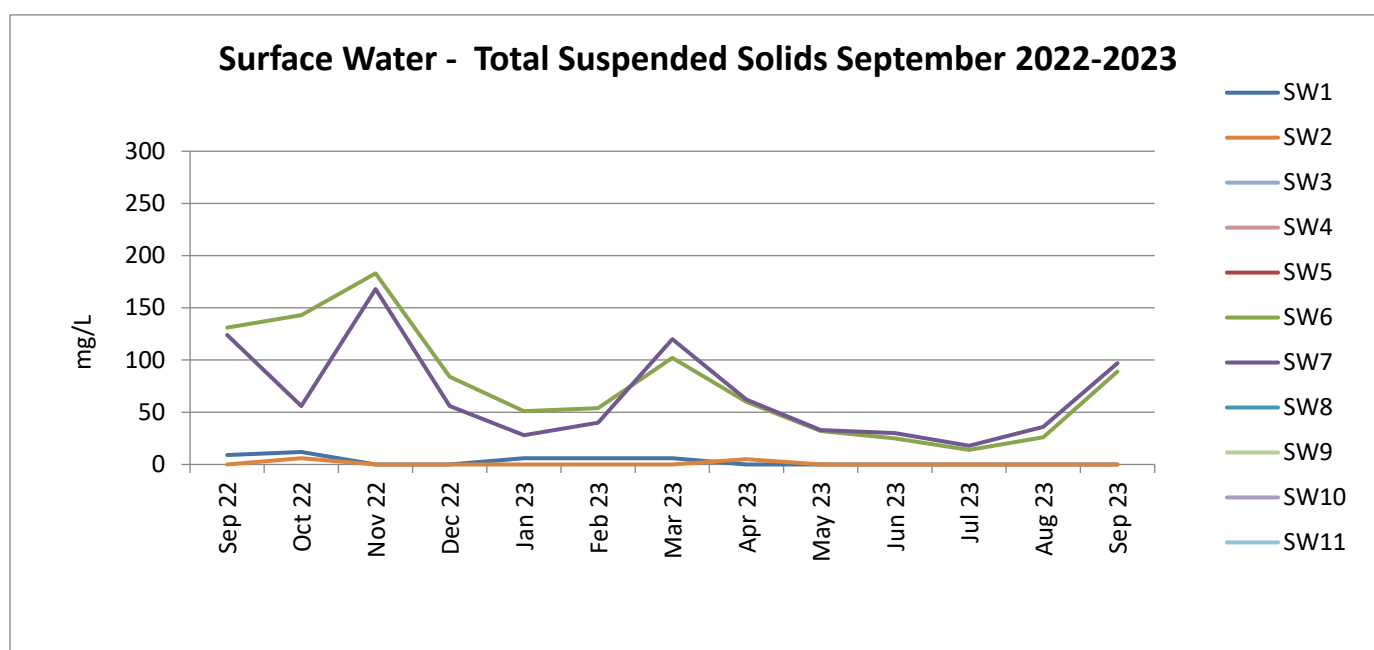
Electrical Conductivity

Surface water EC trends have remained consistent with SW5, SW6, SW7 and SW8 all historically variable. SW5, SW6, SW7 and SW8 are points along the Namoi River which are subject to regulated and variable flow regimes.



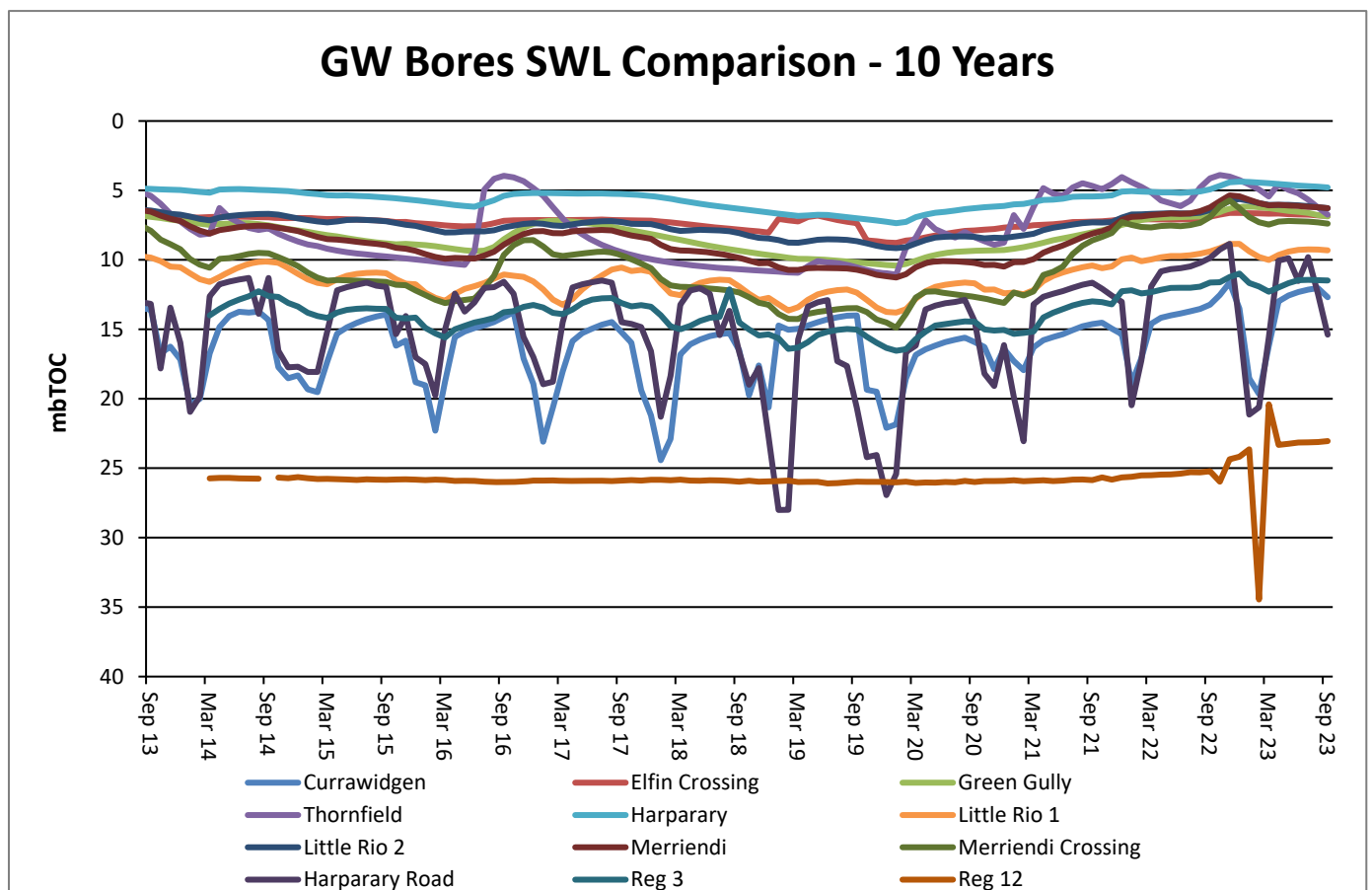
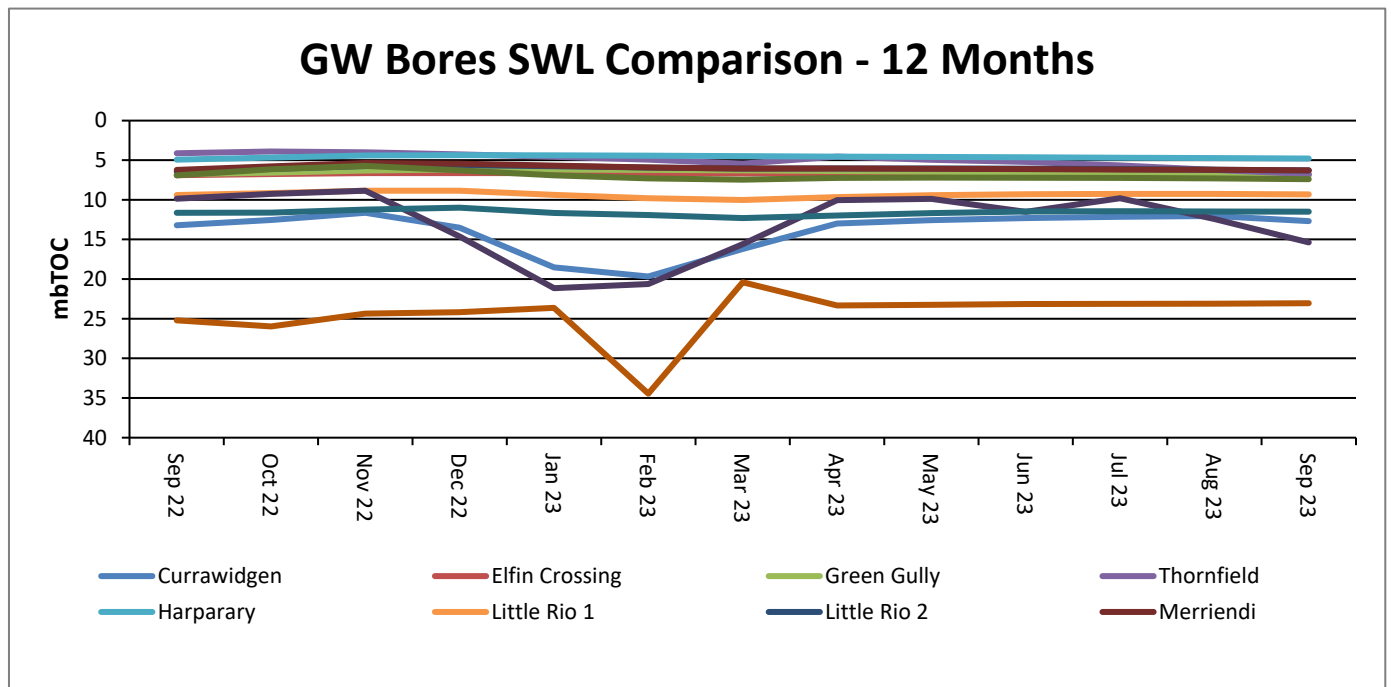
Total Suspended Solids (TSS)

Surface water TSS trends have remained generally consistent with historical results. SW5, SW6, SW7 and SW8 are historically variable as they are located along the Namoi River which is subject to regulated and variable flow regimes. The Q3 results have continued to stabilised on the back of significant rainfall events in Q4 2022 and Q1 2023, as previously mentioned in Q2. This is demonstrated in the graph below.



Regional Groundwater Monitoring

Maules Creek Coal Mine monitors regional bores across the region.



Rehabilitation

Progressive rehabilitation works are ongoing. MCC is on track to complete 20.9ha of rehabilitation for CY23.

Feral Animal Management

The proposed MCC feral animal management control program has been updated to accommodate the increase in feral species across the region. Additional waves of baiting and trapping are to be implemented throughout Q4.

Community Complaints

MCC received one complaint in Q3.

Date received	Method	Category	Nature of Complaint	MCCM Response
20/09/2023	Phone	Landholder access	A MCC employee accessed a neighbouring property without permission from the landholder.	On investigation it was identified that permission had been granted for the 21st September. The access process has been reinforced to employees and no access will occur without approval from landholders.

Maules Creek Coal Mine Community Consultative Committee Meeting #44

Environmental Monitoring Report For the Q4 period, October – December 2023

Attended Noise Monitoring

Maules Creek Coal (MCC) engaged an independent acoustic consultant to conduct LAeq (15minutes) and LA1 (1 minute) attended noise monitoring at six monitoring locations on site.

A. LAeq, 15minute; GENERATED BY MCCM AGAINST OPERATIONAL DAY NOISE CRITERIA; October – December 2023.

The results show that MCCM is within EPL 20221 compliance limits, that operations did not exceed the applicable LAeq (15minute) criteria of 35dB and the EPA's Noise Policy for Industry compliance guidelines.

Table 1 - October Noise Monitoring

Location	Start date and Time	Wind		Stability class	Very enhancing? ¹	Limits, dB ¹		Site levels, dB ²		Exceedances, dB	
		Speed m/s	Direction ³			L _{Aeq,15minute}	L _{Amax}	L _{Aeq,15minute}	L _{Amax}	L _{Aeq,15minute}	L _{Amax}
NM1	18/10/2023 22:30	3.3	144	D	Yes	40	50	IA	IA	Nil	Nil
NM2	18/10/2023 23:30	3.3	130	D	Yes	44	50	<20	25	Nil	Nil
NM3	19/10/2023 00:19	2.8	114	D	No	35	45	<25	27	Nil	Nil
NM4	18/10/2023 23:00	1.6	132	F	No	35	45	<20	<20	Nil	Nil
NM5	18/10/2023 22:00	3.9	144	D	Yes	40	50	IA	IA	Nil	Nil
NM6	18/10/2023 23:55	3.2	130	D	Yes	40	50	IA	IA	Nil	Nil

Notes: 1. Noise limits are adjusted by +5 dB during 'very enhancing meteorological conditions' in accordance with the NPfI.
2. Site-only LAeq,15minute, includes modifying factor penalties if applicable.
3. Degrees magnetic north, "-" indicates calm conditions.

Table 2 – November Noise Monitoring

Location	Start date and Time	Wind		Stability class	Very enhancing? ¹	Limits, dB ¹		Site levels, dB ²		Exceedances, dB	
		Speed m/s	Direction ³			L _{Aeq,15minute}	L _{Amax}	L _{Aeq,15minute}	L _{Amax}	L _{Aeq,15minute}	L _{Amax}
NM1	8/11/2023 22:30	3.1	88	D	Yes	40	50	IA	IA	Nil	Nil
NM2	8/11/2023 23:30	4.1	71	D	Yes	44	50	IA	IA	Nil	Nil
NM3	9/11/2023 00:20	3.4	62	D	Yes	40	50	IA	IA	Nil	Nil
NM4	8/11/2023 23:00	3.4	77	D	Yes	40	50	IA	IA	Nil	Nil
NM5	8/11/2023 22:00	0.4	92	F	No	35	45	IA	IA	Nil	Nil
NM6	8/11/2023 23:55	3.7	67	D	Yes	40	50	NM	NM	Nil	Nil

Notes: 1. Noise limits are adjusted by +5 dB during 'very enhancing meteorological conditions' in accordance with the NPfI.
2. Site-only LAeq,15minute, includes modifying factor penalties if applicable.
3. Degrees magnetic north, "-" indicates calm conditions.

Table 3 – December Noise Monitoring

Location	Start date and Time	Wind		Stability class	Very enhancing? ¹	Limits, dB ¹		Site levels, dB ²		Exceedances, dB	
		Speed m/s	Direction ³			L _{Aeq,15minute}	L _{Amax}	L _{Aeq,15minute}	L _{Amax}	L _{Aeq,15minute}	L _{Amax}
NM1	11/12/2023 22:30	1.2	15	F	No	35	45	IA	IA	Nil	Nil
NM2	11/12/2023 23:30	0.6	165	F	No	39	45	IA	IA	Nil	Nil
NM3	12/12/2023 00:20	1.2	209	F	No	35	45	IA	IA	Nil	Nil
NM4	11/12/2023 23:00	0.6	284	F	No	35	45	<20	<20	Nil	Nil
NM5	11/12/2023 22:00	0.2	0	F	No	35	45	IA	IA	Nil	Nil
NM6	11/12/2023 23:55	1.3	194	F	No	35	45	IA	IA	Nil	Nil

Notes: 1. Noise limits are adjusted by +5 dB during 'very enhancing meteorological conditions' in accordance with the NPFL.
2. Site-only L_{Aeq,15minute}, includes modifying factor penalties if applicable.
3. Degrees magnetic north, "-" indicates calm conditions.

Blast Monitoring

There was 24 blasts at MCCM during Q4 2023. All blast monitoring results recorded within the reporting period have complied with applicable overpressure and ground vibration limits specified in the respective approvals.

Table 5 – Blast Results Summary

Parameter	Units	Frequency	Number	Average	Max	100% Limit	Exceedance (Yes / No)
Noise	dB (Lin Peak)	All	24	93.11	114.5	120	No
Vibration	mm/s		24	0.12	0.52	10	No

Air Quality

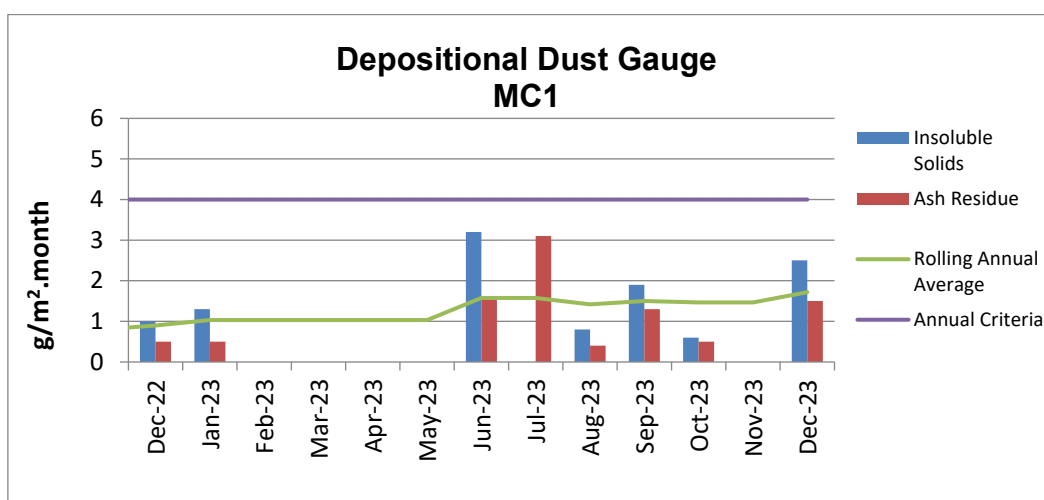
A. Total Depositional Dust

The 12 monthly rolling annual average remains below the relevant Project Approval (PA 10_0138) criteria of 4g/m²/month for the respective monitoring points.

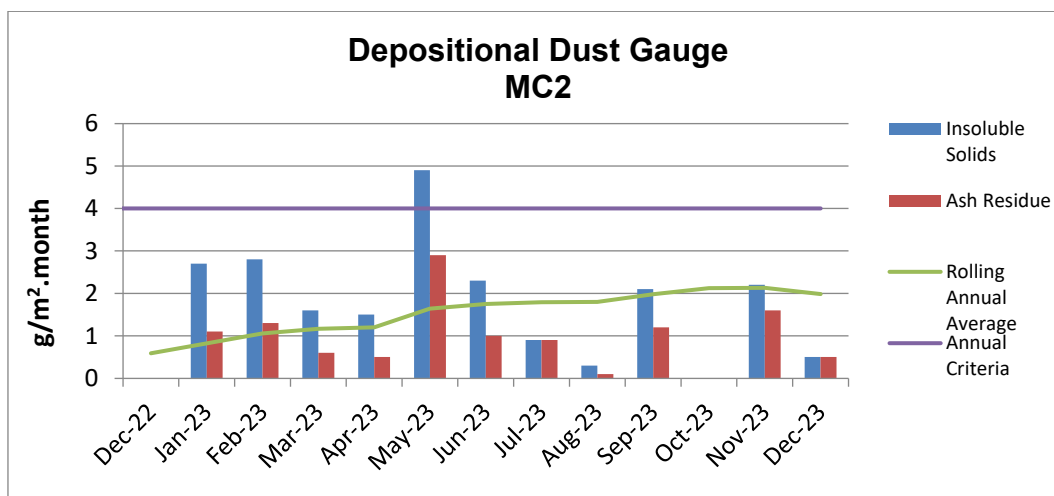
Table 6 – Depositional Dust Gauge Results [g/m²/month]

MONTH	MC1	MC2	MC3	MC4
October	0.6	5.3c	2.0	0.9
November	3.8c	2.2	3.8c	1.0
December	2.5	0.5	0.6	0.4
12 MONTH ROLLING AVERAGE	1.7	2.0	2.5	1.1

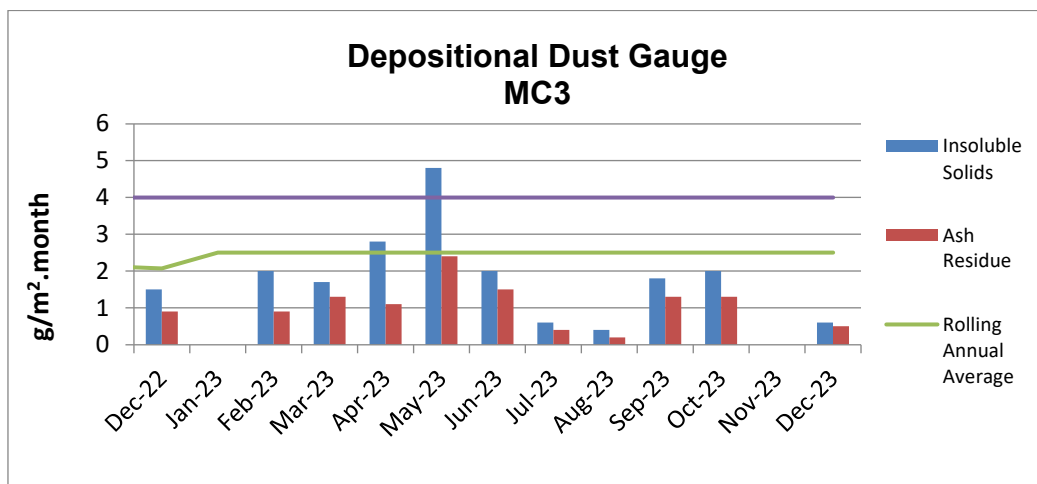
^c samples contaminated by bird dropping, decomposed insects or vegetable matter.



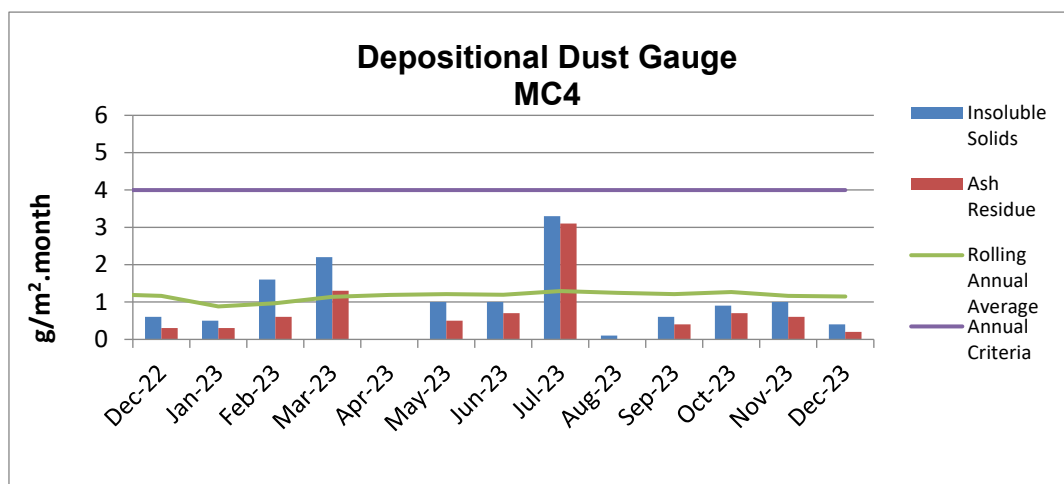
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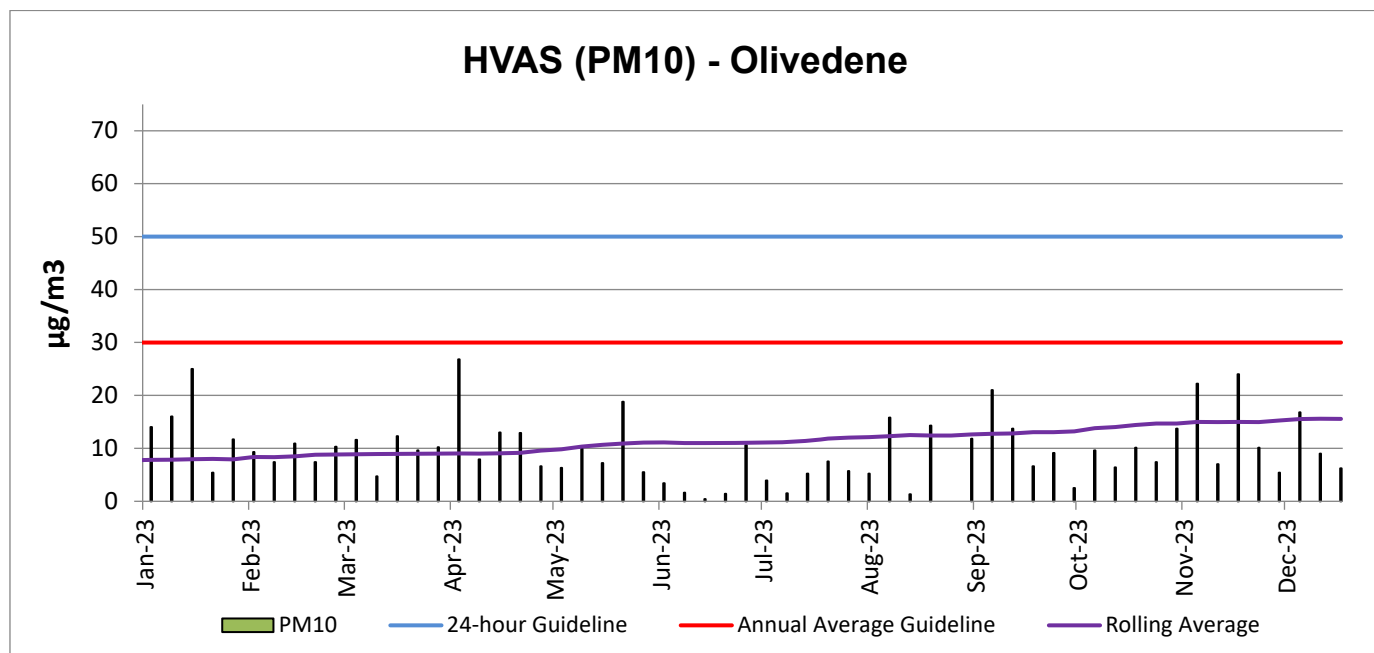


* Blank cells indicate sample periods where the sample has been contaminated and excluded from the results tables due to contaminated material (insect larvae, bird droppings, vegetation etc.).

B. High Volume Air Sampling (HVAS)

The HVAS monitor is located on the property 'Olivedene,' a mine owned property on Therribri Road. During past 12 months, there have been no exceedances of the 24-hour average of 50 $\mu\text{g}/\text{m}^3$.

HVAS PM_{10} Rolling Annual Average as of December was **15.6 $\mu\text{g}/\text{m}^3$** , which is below the Annual Average Guideline of 30 $\mu\text{g}/\text{m}^3$.



C. TEOM - PM10 Results

The annual rolling average for PM10 at the Maules Creek Coal TEOM1 was **11.9 $\mu\text{g}/\text{m}^3$** , which is below the Project Approval annual average criteria of 30 $\mu\text{g}/\text{m}^3$ as shown in the following figure. There were two exceedances of the 24-hour average for Q4 2023, these related to the Pilliga Bushfires.

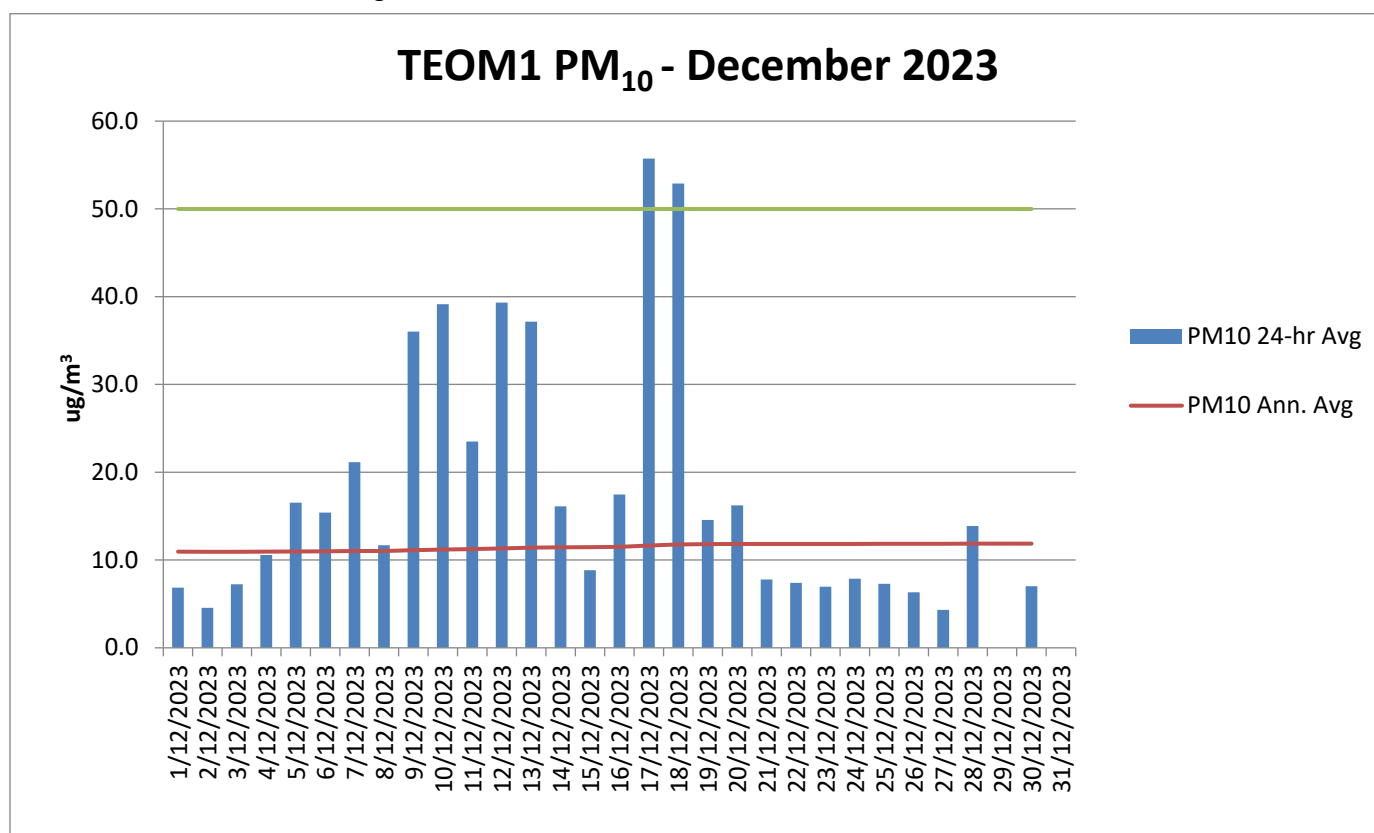


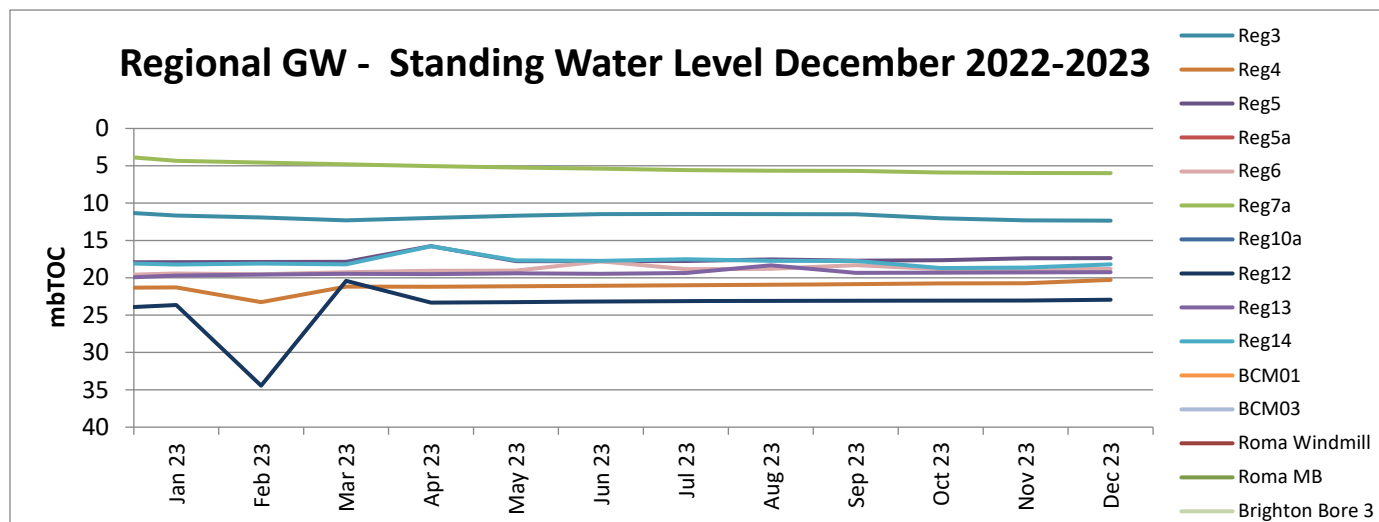
Figure 1 - TEOM Result – Particulate Matter PM₁₀ $\mu\text{g}/\text{m}^3$

* Blank columns indicate sample periods where there was either power outage, maintenance or other related causes.

Water Monitoring

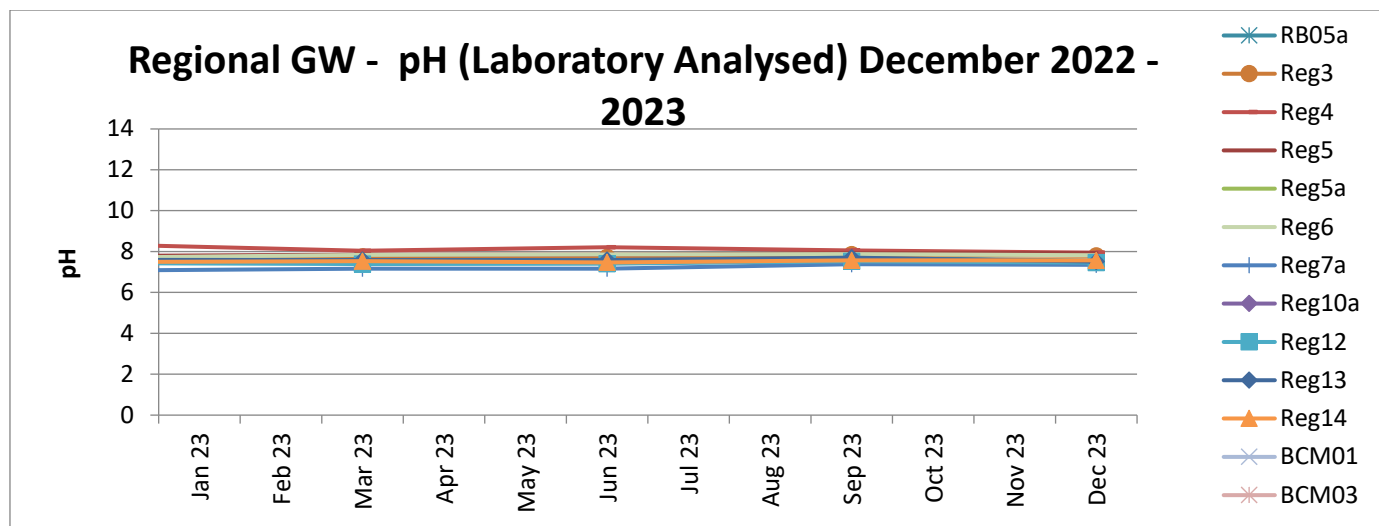
A. Groundwater

Groundwater monitoring results in open standpipe piezometers show levels to be relatively stable. The Regional bores were installed between Q4, 2013 and Q1, 2014. BCM01, BCM03, Reg10 are shallow bores which have remained dry since construction in 2013.



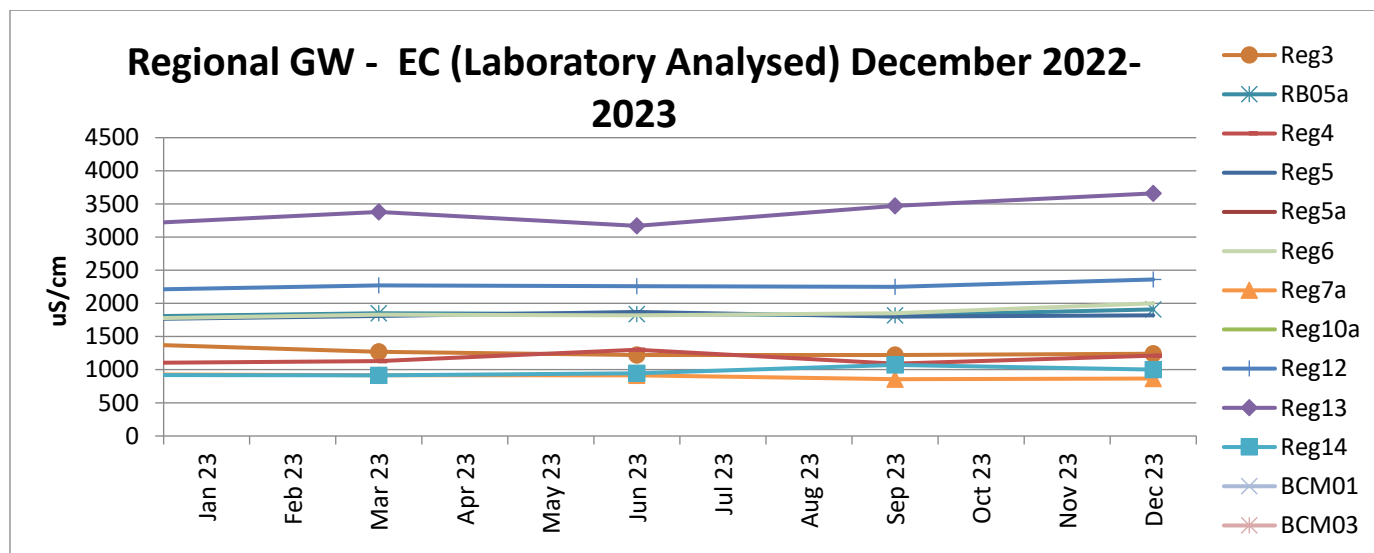
Acidity / Alkalinity (pH)

Over the past twelve months pH readings across the regional bores have remained static with very little fluctuation.



Electrical Conductivity

Laboratory Electrical Conductivity (EC) levels are all within historic groundwater EC range of 500_{µs/cm} to 2,500_{µs/cm}, with the exception of monitoring bore Reg13 which has a historic groundwater EC range of 2,500_{µs/cm} to 4,100_{µs/cm}. Within the last twelve months EC has remained static.

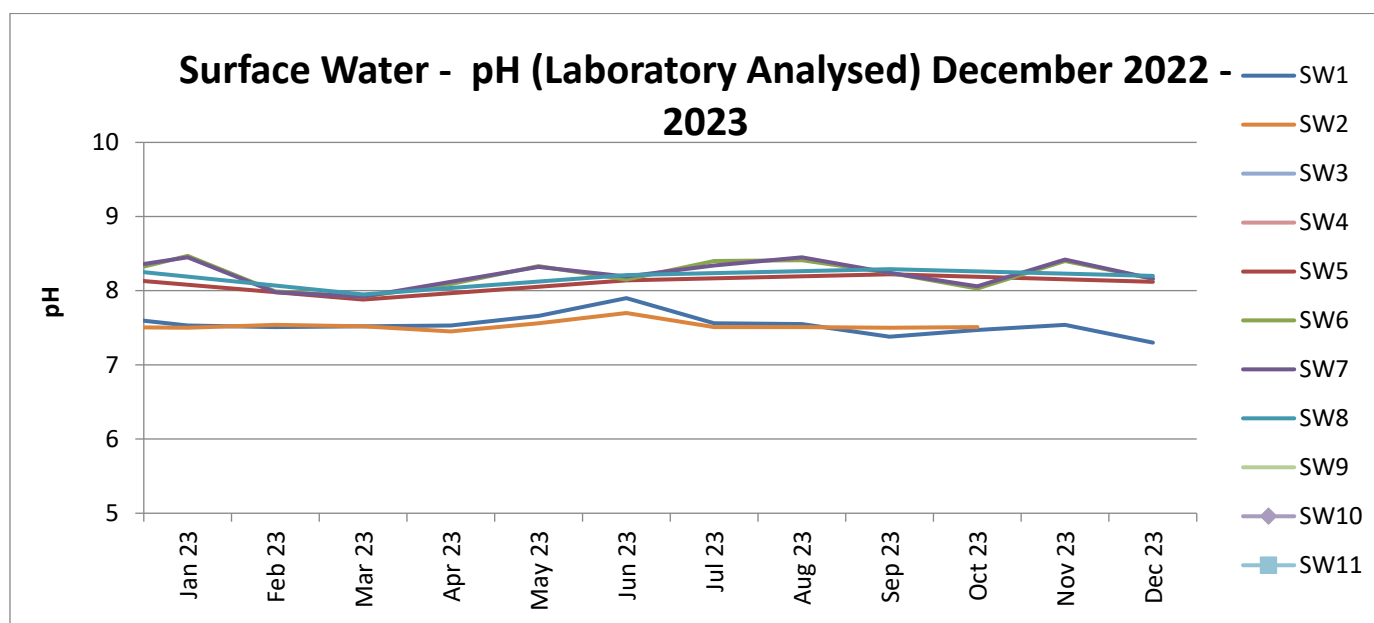


B. Surface Water – Creeks and Rivers

Routine surface water monitoring is conducted in surrounding creeks and rivers on a monthly basis. Results for parameters including pH, EC and Total Suspended Solids (TSS) are shown in the figures below. There are eleven surface water monitoring points, of which a maximum of six sites were able to be sampled during Q4 2023.

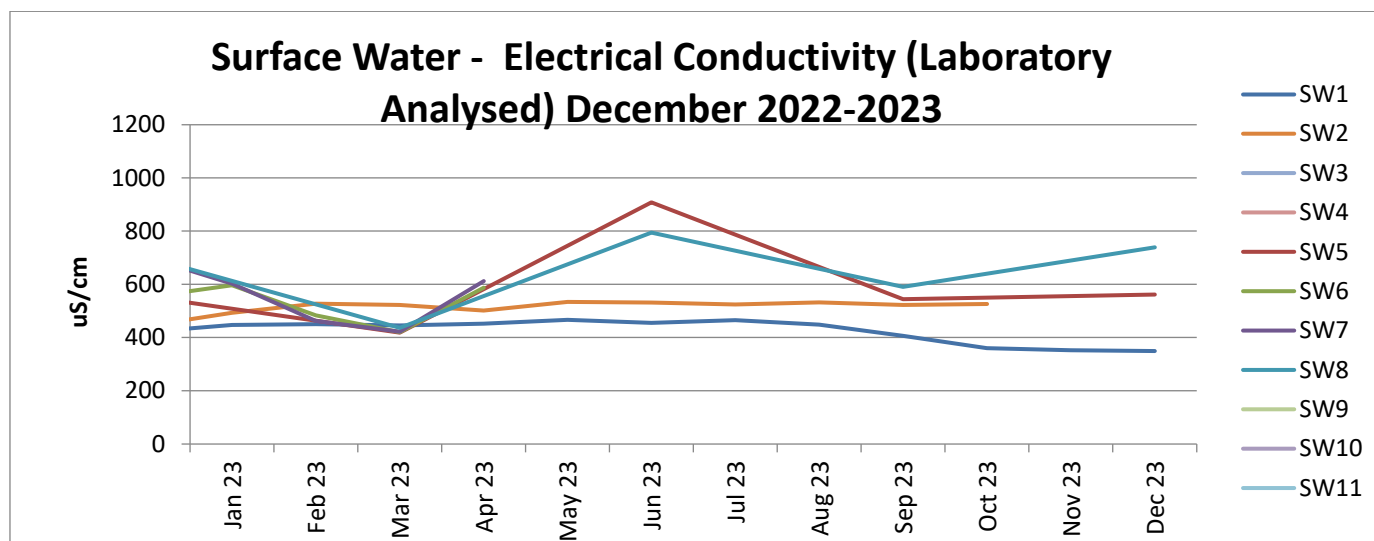
Acidity / Alkalinity (pH)

Monitoring results for pH in creeks and rivers surrounding MCCM are all trending within the ANZECC range for Irrigation, Ecosystem Health and Recreation.



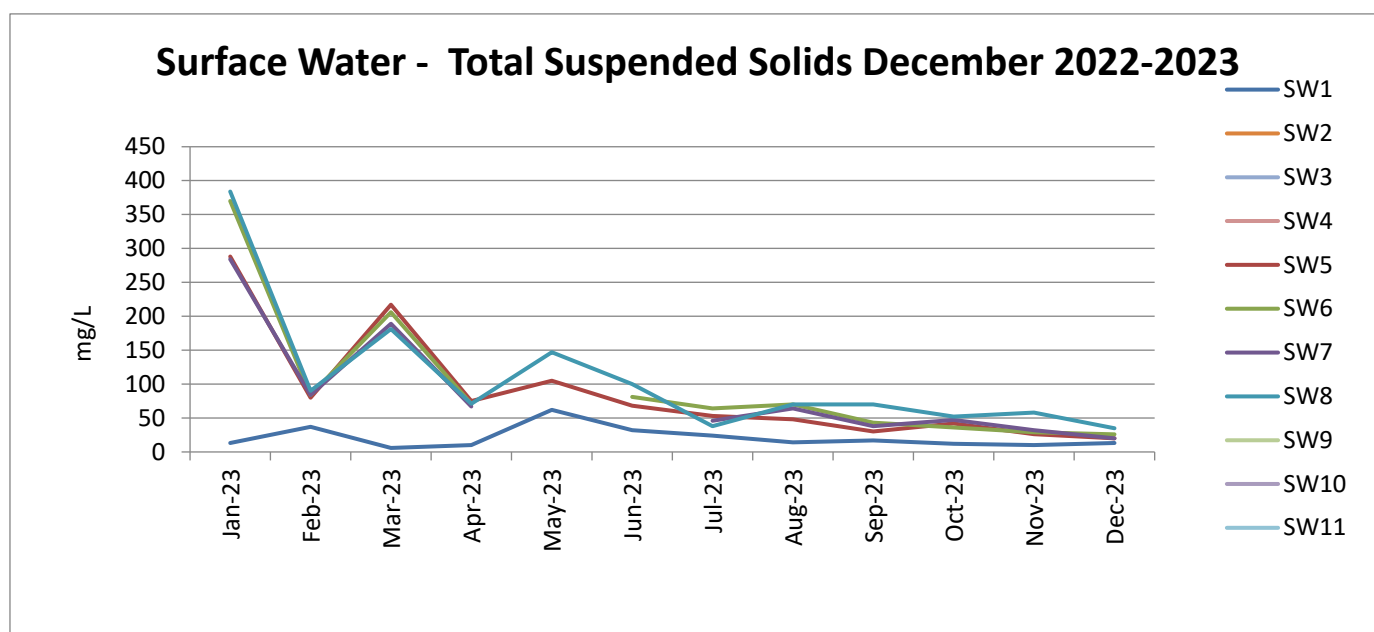
Electrical Conductivity

Surface water EC trends have remained consistent with SW5, SW6, SW7 and SW8 all historically variable. SW5, SW6, SW7 and SW8 are points along the Namoi River which are subject to regulated and variable flow regimes.



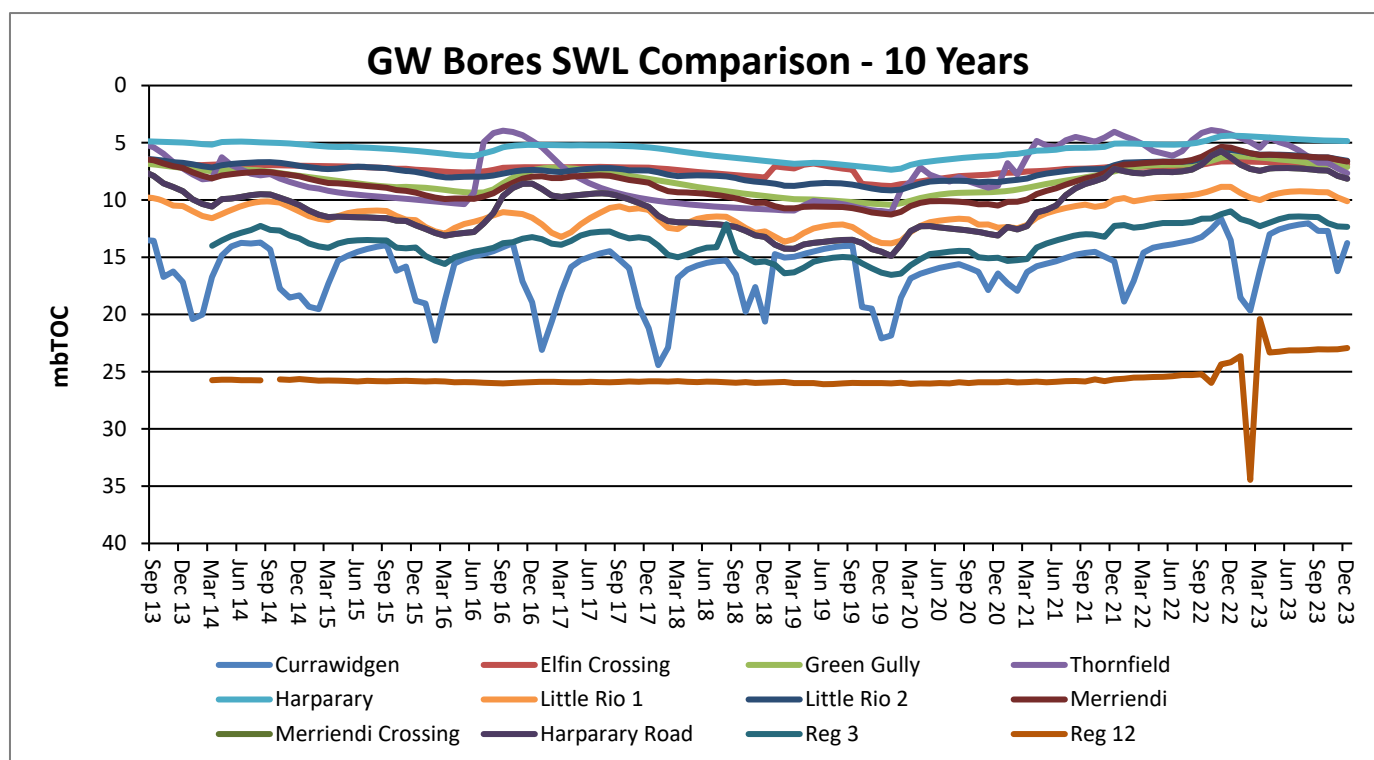
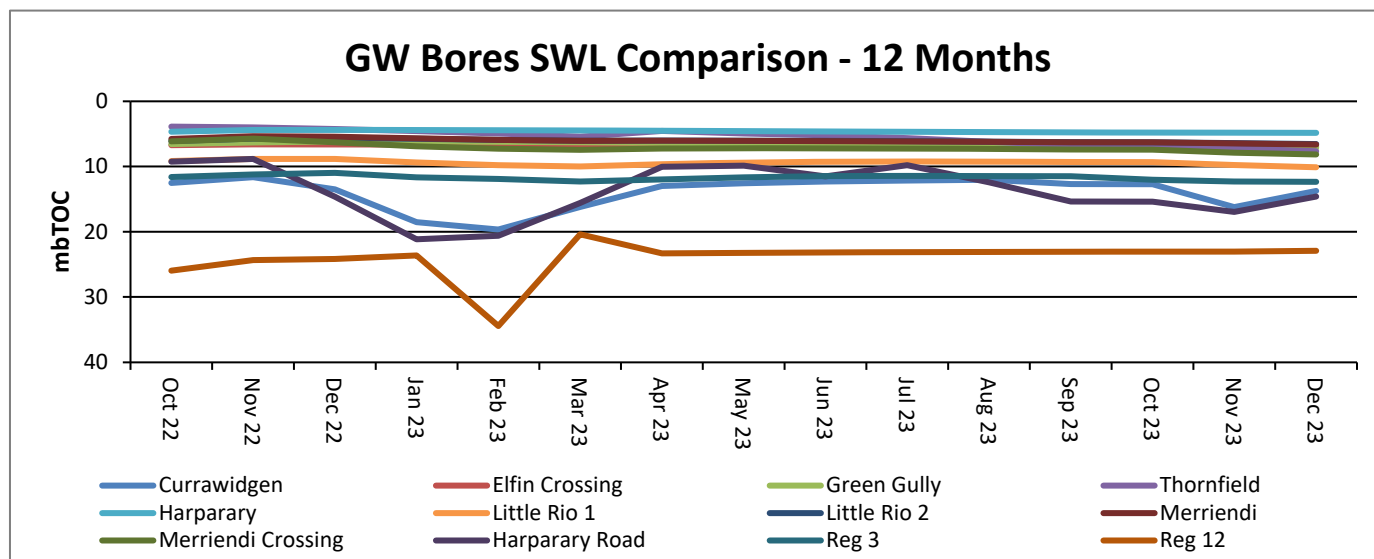
Total Suspended Solids (TSS)

Surface water TSS trends have remained generally consistent with historical results. SW5, SW6, SW7 and SW8 are historically variable as they are located along the Namoi River which is subject to regulated and variable flow regimes. The Q4 results have continued to stabilise on the back of significant rainfall events in Q4 2022 and Q1 2023, as previously mentioned in Q3. This is demonstrated in the graph below.



Regional Groundwater Monitoring

Maules Creek Coal Mine monitors regional bores across the region.



Rehabilitation

Progressive rehabilitation works were completed at MCC, 20.9ha were completed in accordance with the FWP.

Feral Animal Management

The proposed MCC feral animal management control program has been updated to accommodate the increase in feral species across the region. Additional waves of baiting and trapping are to be implemented throughout Q1.

Community Complaints

MCC received two compliant in Q4.

Date received	Method	Category	Nature of Complaint	MCCM Response
6/10/2023	Email	Noise	The EPA received a complaint relating to noise on the night of the 4th October leading into the morning of the 5th October 2023.	MCC reviewed real time monitoring data, operational activities and management measures and provided a response to the agency.
24/12/2023	Phone	Transport	Bus parked in inconvenient location requiring relocation	Bus was relocated immediately.