



Maxwell Infrastructure
Environmental Monitoring Data
Quarter 2 2020

1 INTRODUCTION

Maxwell Infrastructure (formerly Drayton Mine) is owned by Malabar Coal. This report has been compiled to present environmental monitoring data for Maxwell Infrastructure in accordance with Schedule 5, Condition 11 (b) and (c) of Project Approval 06_0202.

This report covers the reporting period 1 April to 30 June 2020. Summaries of historic environmental monitoring data (prior to this report) can be found in the Annual Environmental Management Reports located on the Malabar Coal website.

2 MONITORING RESULTS

Deposited dust monitoring results are provided in **Table 1**.

Continuous TEOM PM₁₀ monitoring results are provided in **Figure 1**.

Surface water quality monitoring results are provided in **Table 2**.

Groundwater quality results are provided in **Table 3**.

Groundwater level results are provided in **Table 4**.

Noise monitoring results are provided in **Table 5**.

Locations of monitoring sites are shown in **Appendix 1 to 4**.

Table 1: Deposited dust monitoring results for Quarter 2.

| Gauge | Insoluble Solids Result (g/m ² /month) | | | Annual Mean Limit (g/m ² /month) | 2020 Annual Mean (g/m ² /month) |
|-------|--|-----|------|--|---|
| | April | May | June | | |
| 2175 | 2.0 | 2.1 | 1.2 | 4.0 | 2.4 |
| 2230 | 1.7 | 1.5 | 1.2 | 4.0 | 2.1 |

| | | | | | |
|-------------|-----|-----|-----|-----|-----|
| 2235 | 1.5 | 1.5 | 1.1 | 4.0 | 2.0 |
| 2247 | 1.4 | 1.9 | 1.0 | 4.0 | 2.5 |

Note: Relative to levels in Q1, deposited dust results were lower during Q2, reflecting the increased rainfall throughout the region and the end to the bushfire season. The year-to-date mean of results recorded at all gauges remain below the annual mean limit.

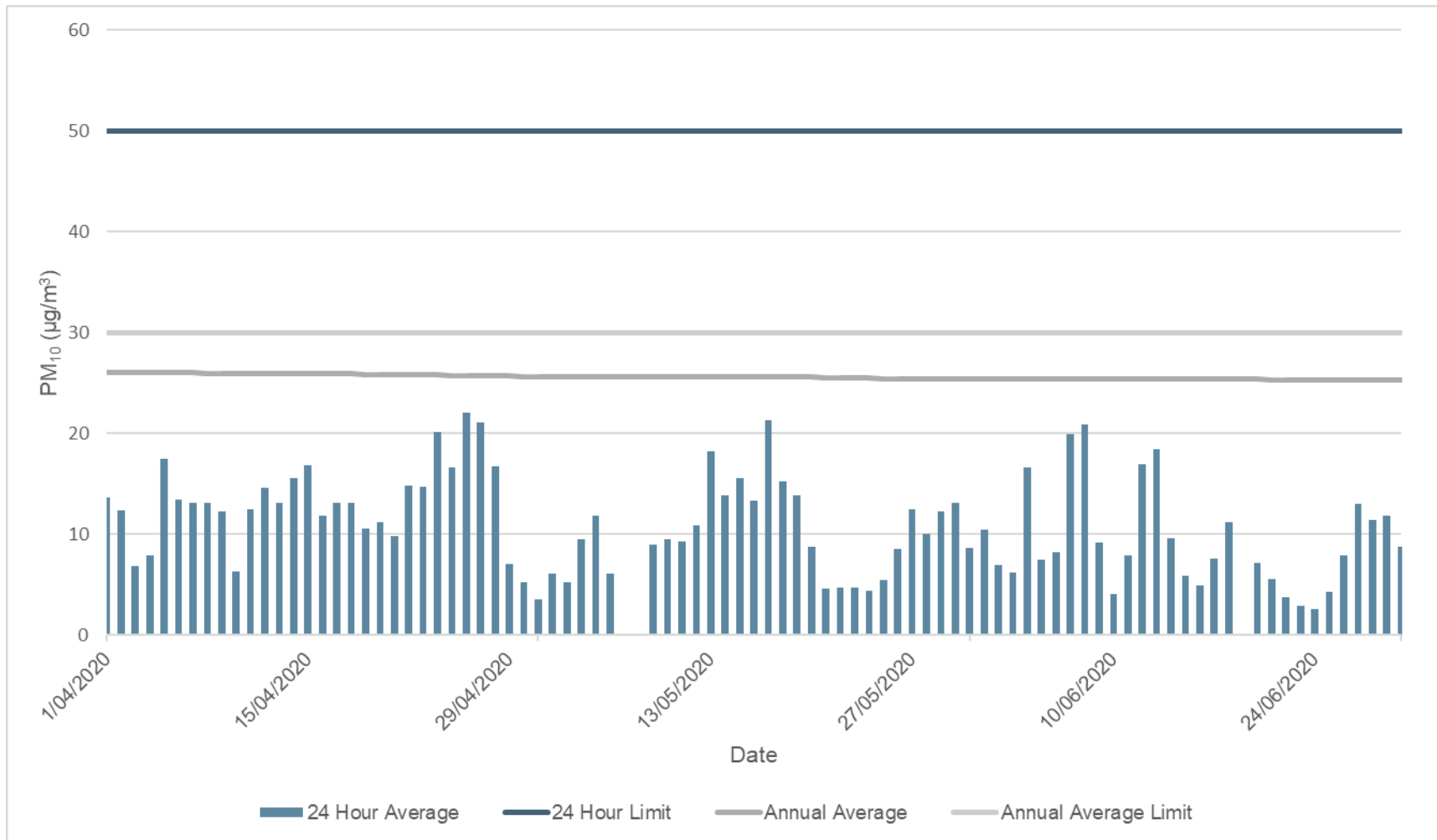


Figure 1: TEOM PM₁₀ monitoring results for Quarter 2.

Notes:

- All 24-hour averages during Quarter 2 were below the 24-Hour Limit. Any future exceedences will be provided in Maxwell Infrastructure's Annual Environmental Management Report.
- An invalid 24-hour PM10 result was recorded on 19 June 2020 due to the scheduled quarterly calibration of the TEOM occurring on that day by monitoring contractors.
- An invalid 24-hour PM10 result was recorded at the TEOM on 7&8 May 2020. This was due to the TEOM being swapped out with a replacement while the unit was taken away for assessment on 7 May. The replacement unit failed to record results until the 8 May. Insufficient data was available to calculate a valid result on both days.

Table 2. Surface water quality monitoring results for Quarter 2 (2020 average shown)

| Site | Month | Bicarbonate (CaCO ₃) (mg/L) | Calcium (mg/L) | Chloride (mg/L) | EC (µS/cm) | Magnesium (mg/L) | pH | Potassium (mg/L) | Sodium (mg/L) | Sulphate (SO ₄) (mg/L) | TSS (mg/L) | TDS (mg/L) |
|--------------------------|----------------|---|-------------------|--------------------|---------------|---------------------|----------|---------------------|------------------|--|---------------|---------------|
| Access Rd Dam (2081) | Jun | 99 | 618 | 1180 | 8370 | 793 | 8.6 | 96 | 939 | 5120 | 5 | 9280 |
| | Average | 80 | 659 | 1240 | 10257 | 847 | 9 | 104 | 1023 | 5150 | 10 | 10460 |
| DC2 Dam (2109) | Jun | 39 | 56 | 404 | 2210 | 80 | 6.5 | 6 | 323 | 624 | 5 | 1590 |
| | Average | 97 | 114 | 1221 | 6550 | 260 | 7 | 11 | 1063 | 1836 | 62 | 5080 |
| Rail Loop Dam (2114) | Jun | 87 | 81 | 116 | 1310 | 57 | 7.8 | 6 | 114 | 470 | 5 | 894 |
| | Average | 132 | 130 | 340 | 2893 | 143 | 8 | 15 | 321 | 1111 | 13 | 2165 |
| Industrial Dam (1969) | Jun | 106 | 360 | 769 | 5650 | 457 | 8.2 | 53 | 598 | 3040 | 6 | 5570 |
| | Average | 71 | 381 | 814 | 6850 | 498 | 9 | 59 | 663 | 3323 | 13 | 6320 |
| OPC Dam | Jun | 95 | 79 | 79 | 1130 | 56 | 8.4 | 8 | 77 | 407 | 5 | 842 |
| | Average | 109 | 144 | 277 | 2547 | 143 | 9 | 20 | 216 | 1030 | 22 | 2001 |
| V Notch | Jun | 337 | 444 | 1390 | 8400 | 418 | 7.8 | 15 | 1500 | 3990 | 5 | 8650 |
| ES Void | Jun | 242 | 540 | 840 | 6420 | 559 | 8.0 | 74 | 604 | 3790 | 5 | 7040 |
| | Average | 220 | 561 | 865 | 7643 | 606 | 8 | 79 | 647 | 3983 | 29 | 7470 |

Notes:

The February 2020 revision of the Water Management Plan (approved 19 February 2020) included a reduction in the frequency of surface water monitoring from monthly to quarterly to align with the post-closure monitoring program summary in the 2016 Mining Operations Plan (incorporating the Mine Closure and Final Void Management Plans).

Average is for 2020 (January – June 2020), consisting of samples taken in January, February and June. Samples in March were not taken due to COVID-19 restrictions; the sampling frequency then reverted to quarterly as per the revised Water Management Plan.

Maxwell Infrastructure is a closed water management system with all water maintained on-site for use in operational activities.

Table 3: Groundwater quality monitoring results for Quarter 2 (samples taken June). See notes for further details.

| Site | Arsenic | Barium | Beryllium | Bicarbonate Alkalinity as CaCO3 | Boron | Cadmium | Calcium | Chloride | Chromium | Cobalt | Copper | Electrical conductivity | Lead | Magnesium | Manganese | Nickel | pH value |
|---------------------|-------------------|--------|-----------|---------------------------------|-------|---------|---------|----------|----------|--------|--------|-------------------------|-------|-----------|-----------|--------|----------|
| DS1 | 0.001 | 0.01 | 0.001 | 302 | 0.06 | 0.0002 | 506 | 826 | 0.002 | 0.007 | 0.001 | 6470 | 0.001 | 309 | 1.82 | 0.02 | 6.5 |
| DS1 2020 avg | 0.001 | 0.01 | 0.001 | 291 | 0.06 | 0.0002 | 511 | 844 | 0.002 | 0.007 | 0.001 | 7532 | 0.001 | 315 | 1.82 | 0.02 | 6.4 |
| R4241 | 0.002 | 0.046 | 0.001 | 752 | 0.12 | 0.0001 | 174 | 790 | 0.005 | 0.006 | 0.004 | 4220 | 0.008 | 250 | 0.145 | 0.026 | 7.0 |
| F1162 | Bore dry | | | | | | | | | | | | | | | | |
| F1164 | Too low to sample | | | | | | | | | | | | | | | | |
| GW01D | 0.001 | 0.066 | 0.001 | 573 | 0.33 | 0.0001 | 411 | 1260 | 0.001 | 0.007 | 0.001 | 4850 | 0.001 | 167 | 0.25 | 0.02 | 6.9 |
| GW01S | Too low to sample | | | | | | | | | | | | | | | | |
| GW02D | 0.006 | 0.140 | 0.001 | 1530 | 0.24 | 0.0001 | 44 | 744 | 0.007 | 0.005 | 0.010 | 7540 | 0.008 | 12 | 0.24 | 0.02 | 7.3 |
| GW02S | 0.001 | 0.035 | 0.001 | 898 | 0.14 | 0.0001 | 424 | 1040 | 0.002 | 0.006 | 0.001 | 7660 | 0.001 | 515 | 0.58 | 0.02 | 6.9 |

Table 3 continued

| Site | Potassium | Selenium | Sodium | Sulfate as SO ₄ - Turbidimetric | Suspended Solids (SS) | Total Dissolved Solids @180°C | Vanadium | Zinc | Nitrite as N | Nitrate as N | Mercury | Ammonia as N | Total Kjeldahl Nitrogen as N | Total Nitrogen as N | Total Phosphorus as P | Reactive Phosphorus as P |
|-------------------------|-------------------|----------|--------|--|-----------------------|-------------------------------|----------|-------|--------------|--------------|---------|--------------|------------------------------|---------------------|-----------------------|--------------------------|
| DS1 | 22 | 0.01 | 980 | 3330 | 160 | 6420 | 0.01 | 0.026 | 0.01 | 0.01 | 0.0001 | 0.12 | 0.2 | 0.2 | 0.07 | 0.02 |
| <i>DS1 2020 average</i> | 22 | 0.01 | 1010 | 3433 | 241 | 6586 | 0.01 | 0.026 | 0.01 | 0.01 | 0.0001 | 0.12 | 0.20 | 0.20 | 0.07 | 0.02 |
| R4241 | 14 | 0.01 | 469 | 930 | 41 | 3050 | 0.01 | 0.122 | 0.01 | 0.83 | 0.0001 | 0.76 | 1.20 | 2.00 | 0.22 | 0.01 |
| F1162 | Bore dry | | | | | | | | | | | | | | | |
| F1164 | Too low to sample | | | | | | | | | | | | | | | |
| GW01D | 20 | 0.01 | 546 | 610 | 52 | 3790 | 0.01 | 0.066 | 0.01 | 0.21 | 0.0001 | 0.62 | 0.60 | 0.80 | 0.01 | 0.01 |
| GW01S | Too low to sample | | | | | | | | | | | | | | | |
| GW02D | 17 | 0.01 | 2130 | 2270 | 1440 | 5810 | 0.01 | 0.046 | 0.10 | 0.12 | 0.0001 | 4.48 | 8.70 | 8.90 | 3.10 | 0.01 |
| GW02S | 36 | 0.01 | 1160 | 3510 | 896 | 7620 | 0.01 | 0.019 | 0.01 | 0.02 | 0.0002 | 0.04 | 0.10 | 0.10 | 0.04 | 0.01 |

Notes:

- Sites GW01D, GW01S, GW02D and GW02S were added in February 2020 to provide further data to monitor groundwater surrounding the pit, further details are provided in the Water Management Plan (revised in February 2020).
- In addition, nutrients and total and dissolved metals were added to the suite of parameters analysed for all sites to provide further data on groundwater quality. These included:
 - Total and dissolved metals (Arsenic, Boron, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Lead, Selenium, Vanadium, Zinc, Mercury); and
 - Total nitrogen, nitrate, nitrite, ammonia, total Kjeldahl nitrogen, reactive phosphorus and total phosphorus).

Total metals and nutrients were not monitored during March 2020 due to accessibility issues attributed to restrictions associated with Covid-19.

Averages shown are for 2020 (January–June 2020), hence for Q2 results are presented for June only, with the exception of DS1 for which monthly samples are taken for specified analytes, and hence the average presented is the average of all samples taken during 2020.

All results are in mg/L except Conductivity ($\mu\text{S}/\text{cm}$) and pH (in pH units).

Table 4. Reduced standing groundwater levels (mAHD) for Quarter 2. Q1 values shown for reference.

| Site | January | February | June | 2020 Average |
|-------|---------|----------|-------------------|--------------|
| DS1 | 223.30 | 223.53 | 223.09 | 223.22 |
| R4241 | 174.57 | 174.85 | 174.43 | 174.62 |
| F1162 | 121.27 | 121.24 | Bore dry | 121.26 |
| F1164 | 119.30 | 119.27 | Too low to sample | 119.29 |
| GW01D | 199.25 | 197.98 | 198.32 | 198.52 |
| GW01S | 197.80 | 197.04 | 197.03 | 197.29 |
| GW02D | 187.52 | 137.63 | 146.16 | 157.10 |
| GW02S | 187.72 | 188.34 | 187.86 | 187.97 |

Table 5. Noise monitoring results for Quarter 2

| Sampling point | Day (LA eq (15 minute)) | | Evening (LA eq (15 minute)) | | Night (LA eq (15 minute)) | | Night (LA1 (1 minute)) | | Exceedance (yes/no) | Observations |
|----------------|-------------------------|-------------|-----------------------------|-------------|---------------------------|-------------|------------------------|-------------|---------------------|--------------|
| | Criteria | Noise Level | Criteria | Noise Level | Criteria | Noise Level | Criteria | Noise Level | | |
| R12 | 35 | - | 35 | - | 39 | - | 47 | - | - | |
| R13 | 35 | - | 35 | - | 36 | - | 45 | - | - | |
| R14 | 35 | - | 35 | - | 37 | - | 47 | - | - | |
| R16* | 35 | - | 35 | - | 38 | - | 47 | - | - | |
| R17 | 35 | - | 35 | - | 38 | - | 47 | - | - | |
| R18 | 35 | - | 35 | - | 40 | - | 47 | - | - | |
| R19 | 35 | - | 35 | - | 41 | - | 47 | - | - | |
| R20 | 35 | - | 35 | - | 41 | - | 45 | - | - | |
| R21 | 35 | - | 36 | - | 41 | - | 45 | - | - | |
| R22 | 35 | - | 36 | - | 42 | - | 45 | - | - | |
| R23 | 35 | - | 37 | - | 40 | - | 47 | - | - | |
| R25 | 35 | - | 37 | - | 41 | - | 47 | - | - | |
| R26 | 36 | - | 36 | - | 35 | - | 47 | - | - | |
| R27 | 36 | - | 36 | - | 36 | - | 47 | - | - | |
| R28 | 36 | - | 37 | - | 37 | - | 47 | - | - | |
| R29 | 36 | - | 37 | - | 38 | - | 47 | - | - | |
| R31 | 36 | - | 37 | - | 39 | - | 47 | - | - | |
| R32 | 36 | - | 37 | - | 42 | - | 47 | - | - | |
| R33 | 37 | - | 38 | - | 36 | - | 45 | - | - | |
| R34 | 38 | - | 38 | - | 38 | - | 45 | - | - | |
| R35 | 38 | - | 38 | - | 38 | - | 45 | - | - | |

| | | | | | | | | | | |
|---------------------------------------|--|---|----|---|----|---|----|---|---|--|
| R37 | 38 | - | 39 | - | 38 | - | 45 | - | - | |
| R42 | 39 | - | 40 | - | 39 | - | 45 | - | - | |
| R61* | 39 | - | 40 | - | 39 | - | 45 | - | - | |
| R69 | 40 | - | 39 | - | 39 | - | 47 | - | - | |
| R70 | 40 | - | 40 | - | 39 | - | 47 | - | - | |
| R71 | 41 | - | 41 | - | 39 | - | 47 | - | - | |
| R72* | 35 | - | 35 | - | 35 | - | 47 | - | - | |
| R75* | 35 | - | 35 | - | 35 | - | 47 | - | - | |
| R76* | 35 | - | 35 | - | 35 | - | 47 | - | - | |
| R86 | 35 | - | 35 | - | 35 | - | 45 | - | - | |
| All Other Privately-Owned Land | 35 | - | 35 | - | 35 | - | 45 | - | - | |
| Additional Information | | | | | | | | | | |
| Date of Final Report | N/A | | | | | | | | | |
| Date Sampled | N/A | | | | | | | | | |
| Weather Conditions | N/A | | | | | | | | | |
| Notes | <p>Noise monitoring is conducted 6-monthly in March and September; therefore no results are provided for Quarter 2 2020.</p> <p>* Measured: R16 (Doherty), R35 (Wilson), R61 (Skinner), R72 (Robertson), R75 (Shaman), and R76 (Holder). The noise levels at all other locations are determined by noise modelling or extrapolation.</p> | | | | | | | | | |

APPENDIX 1 – AIR QUALITY LOCATIONS



APPENDIX 2 – BLAST LOCATIONS



APPENDIX 3 – SURFACE AND GROUNDWATER LOCATIONS



APPENDIX 4 – NOISE LOCATIONS

