

2022/2023

Annual Environmental Report

Prepared By:

Mid West Ports Authority



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Attachment 1 - Annual Sediment Monitoring Compliance Survey 2023

Attachment 2 - Annual Audit Compliance Report (AACR)

1 Introduction

1.1 PURPOSE

The Geraldton Port is situated in the Mid West region of Western Australia, approximately 430km north of Perth. Geraldton is the major hub for the region and services the mining, agricultural and fishing industries. The Geraldton Port consists of a Commercial Harbour comprised of seven bulk loading berths, as well as a Fishing Boat Harbour (FBH). These facilities are managed by the Mid West Ports Authority (MWPA). The location and layout of the Port of Geraldton is shown on Figure 1.

This Annual Environmental Report provides a summary of environmental monitoring results as they relate to operational activities during the period 1 July 2022 to 30 June 2023 inclusive.

The Geraldton Port operates under Environmental Licence L4275/1982/15 (the Licence) which is administered by the Department of Water and Environmental Regulation (DWER). This report is produced to meet the requirements of Condition 4.2.1 and 4.2.2 of the Licence.

This report is also submitted in accordance with Condition 3.2.3 relating to monitoring of ambient sediment quality, whereby an investigation report is required to be provided to DWER within six weeks of becoming aware of a limit exceedance for parameters in Table 3.2.2.

Table 1 – Annual Reporting Requirements

Condition or Table	Requirement	Relevant Section(s) of this Report
-	Summary of any failure or malfunction of any pollution control equipment and any environmental incidents that have occurred during the annual period and any action taken	Environmental Incidents Section 6
1.3.7	Representative DEM level for each distinct manganese product handled in the Annual Period.	No manganese ore was loaded during this reporting period.
1.3.9	Moisture Content averaged over each shipment of manganese ore	HiVol Manganese PM10 Monitoring Section 2.3.2.5
1.3.10	Particle size distribution of each distinct manganese ore product (lump and fines)	
Table 3.2.1	Ambient air quality monitoring and a comparison against specified targets.	Air Quality Monitoring Section 2.3
Table 3.2.2	Ambient sediment monitoring	Sediment Quality Section 3
3.2.3	Investigation report for ambient sediment quality exceedances	Sediment Quality Section 3
Table 3.2.3	Stormwater monitoring	Emissions and Discharge Monitoring Section 4
Table 3.2.4	Ambient marine quality monitoring	No iron concentrate was loaded during the reporting period
4.1.3	Compliance	Annual Audit Compliance Report (AACR)
4.1.4	Complaints Summary	Summary of Complaints Section 5



Figure 1 – Location and Layout of Geraldton Port

1.2 GERALDTON PORT OPERATIONS 2022/2023

M/WPA continued to operate seven (7) commercial berths and associated marine assets during the 2022/2023 reporting period as outlined below:

- Berth 1/2 is operated and maintained by M/WPA and was primarily used for fuel bunkering.
- Berth 3 shiploading infrastructure is owned and operated by Co-operative Bulk Handling (CBH) for the export of grain.
- Berth 4 bulk handling facility (BHF) and shiploader are owned and operated by M/WPA for the export of mineral sands, talc, and metal concentrates.

- Berth 5 bulk handling facility (BHF) and shiploader are owned and operated by MWPA for the export of iron-ore.
- Berth 6 is utilised for import of fertiliser, fuel, and heavy mineral concentrate (HMC) and export of metal concentrates by rotainer operations. Break bulk cargo is also imported via Berth 6.

Berth 7 shiploading infrastructure is owned and operated by Karara Mining for the export of iron-ore.

A total of 13,506,006 tonnes of product regulated under environmental licence L4275/1982/15 was shipped during the reporting period. Approximately 84% of throughput consisted of iron-ore exports, which totalled 11,314,912 tonnes during the period from Berth 5 and Berth 7. In addition to regulated products, a total of 3,643,872 tonnes of grain and oilseed was exported by CBH via Berth 3.

A summary of annual throughput by Category 58 licenced commodity is provided in Figure 2.

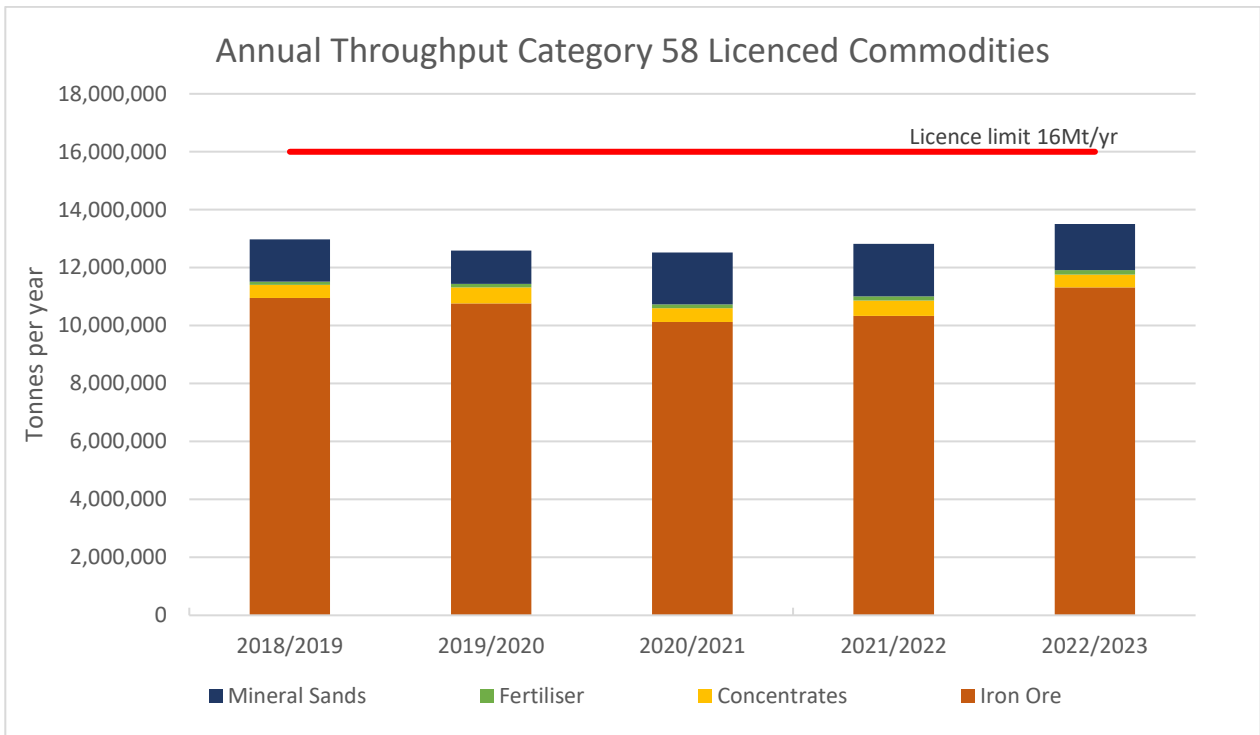


Figure 2 – Geraldton Port Annual Throughput by Commodity

2 Ambient Air Quality

Ambient air quality monitoring is conducted by MWPA using a network of Tapered Element Oscillating Microbalance (TEOM) real time dust monitors that measure particulate matter finer than 10 microns in diameter (PM₁₀) at 10-minute intervals. Metals speciation monitoring is also conducted using High Volume Air Samplers (HiVol) that measure metal concentrations as Total Suspended Particulates (TSP) and PM₁₀. The program was implemented in 2009 in response to amendments to the Licence and includes four air quality monitoring stations to represent the north, east, south, and west boundaries of the prescribed premises. The location of each air quality monitoring station is shown in Figure 3.

Abbreviations for air quality monitoring stations used throughout this report are:

- Berth 1 – B1
- Connell Road – CR
- Lemmon Road – LR
- Port Way – PW

Wind speed and wind direction is monitored via the Tower 501 anemometer. This wind sensor is used for operational and reporting purposes and is considered to provide the best representation of wind parameters experienced within the commercial harbour.

Condition 3.2 of the Licence requires ambient environmental quality monitoring to be undertaken. Air quality limits and targets set in the Licence are summarised in Table 2.

Table 2 - Air Quality Emission Limits and Targets

Emission	Category	Averaging Period	Value
Dust as PM ₁₀	Target	24 Hours	50.0 µg/m ³
Dust as TSP	Target	24 Hours	90.0 µg/m ³
Copper as PM ₁₀	Target	24 Hours	1.0 µg/m ³
Lead as PM ₁₀	Target	24 Hours	0.5 µg/m ³ – at LR, PW & B1 2.0 µg/m ³ – CR
Lead as TSP	Limit	3 Month Rolling Average	0.5 µg/m ³
Nickel as TSP	Target	24 Hours	0.14 µg/m ³
Manganese as PM ₁₀	Target	Annual Rolling Average	0.15 µg/m ³

The Licence number in which this condition was introduced was L4275/1982/13

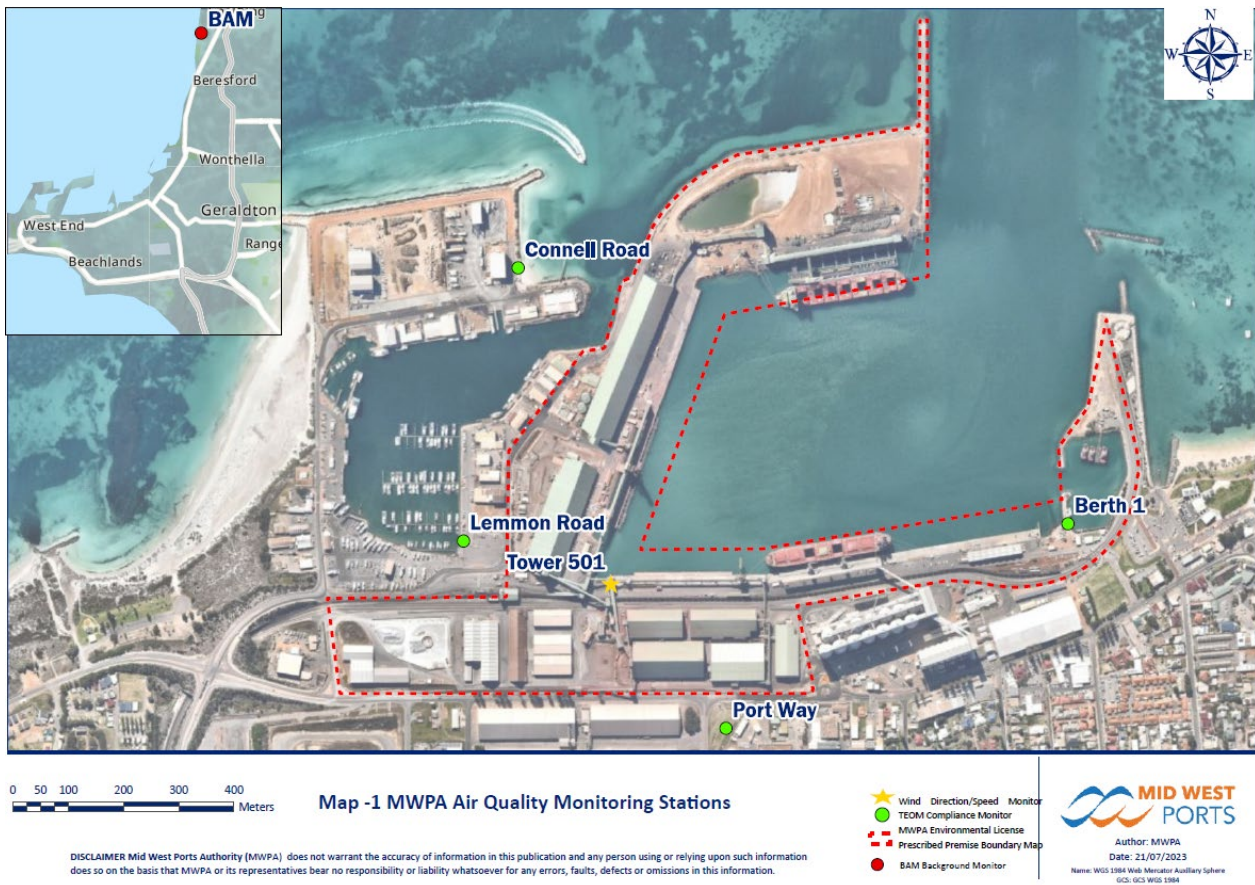


Figure 3 – MWPA Air Quality and Wind Monitoring Network

2.1 FACTORS AFFECTING AIR QUALITY 2022/2023

Ambient dust concentrations on any given day will depend on a range of activities, meteorological factors and potential dust sources (both Port related and non-Port related). Dust from these sources can impact upon air quality measured at the Port monitoring stations and include:

- Elevated ambient background dust levels (regional and local scale).
- Offsite dust sources, such as suspended aerosol components of sea spray and windblown dust.
- Transport of bulk products via trains/trucks and unloading via train/truck unloaders.
- Localised construction, excavation, and heavy vehicle movement activities.
- Loading of bulk products via conveyors and shiploaders including grain over Berth 3; mineral sands, talc, and metal concentrates over Berth 4; and iron-ore over Berth 5 and 7.
- Loading of metal concentrates and mineral sands concentrate via rotainer box at Berth 6.
- Unloading of fertiliser and mineral sands at Berth 6 via mobile hopper and grab operation or self-discharging vessel.
- Dust from unsealed surfaces and disturbed ground.

2.1.1 Geraldton Climate

Geraldton has a Mediterranean type climate with hot, dry summers and mild, wet winters. The summer months (December to February) experience strong coastal sea breezes with offshore winds dominating in the mornings and sea breezes in the afternoons. The combination of hot dry weather and strong winds during the summer months can result in naturally high dust levels. This can occur both as regional scale dust storms, due to strong winds blowing over the surrounding agricultural areas, or localised dust levels in areas of low vegetation cover and sandy soils such as the coastal strip which surrounds Geraldton Port.

In the coastal environments of Geraldton hot dry summers result in lower levels of ground cover and dry soils. As a result, the typical southerly winds are often associated with localised dust generation. Additionally, it is recognised that using the Australian Standard air quality monitoring methodologies, that the aerosol component of salt in the air also increases measured dust levels.

Rainfall, wind speed, wind direction, temperature and humidity are all factors that can impact dust levels measured in the region and within the Port.

2.1.2 Background Dust Levels

To better understand typical background dust levels commensurate with the Port's location, MWPA installed a real time PM₁₀ Beta Attenuation Monitor (BAM1020) in late 2013. The BAM is located approximately 4km north of the Port in the suburb of Bluff Point (Figure 4). This location was selected as the weather, vegetation and soil characteristics are proportionate with those experienced at the Port. It is positioned at a similar distance to the ocean, which may influence PM₁₀ concentrations through sea spray and salt. This site is referred to as Background BAM (BB) for the remainder of this report.



Figure 4 - MWPA Background Air Quality Monitoring Location

2.2 DUST MANAGEMENT INITIATIVES 2022/2023

MWPA maintained a continued focus on improving air quality in both the Commercial and Fishing Boat Harbours during 2022/23. MWPA appointed a dedicated Dust Management Project Manager in late 2022 to execute a number of improvement initiatives. These improvement initiatives are outlined below.

- A full external review of the Bulk Handling Facility (BHF) Dust Extraction System was undertaken by an external specialist on dust suppression. This review looked at the capacity and suitability of the existing dust extraction systems within the BHF and provided recommendations for improvement. The Dust Extraction System Review has resulted in a number of projects that are progressively being actioned, including the following:
 - Upgrades to the Common User Truck Unloader dust extraction system were completed mid-2023, including partial enclosure of the southern end of the facility. This acts to reduce the

velocity of southerly winds, allowing dust extraction to be more effective. Upgrades also included fabrication of removable dust hoods to bring dust extraction points closer to the truck unloader hopper.

- Installation of a dry fog dust suppression system was completed as a trial on the CV502 conveyor in the iron-ore circuit. The system proved to be more effective than the previous dust extraction system. MWPA is now intending to implement the same technology in a dry fog suppression system on the Berth 5 shiploader, expected to be completed late 2023.
- A DustTamer® wind reduction fence was constructed on Marine Terrace in April 2023, adjacent to the talc stockpile south of the FBH. The fence is designed to reduce wind speed downwind, whilst maintaining air pressure equilibrium on both sides. This limits the lift-off of material from the talc stockpile. Modelling completed in 2023 predicts a 50% reduction in dust levels downwind of the DustTamer® fence should be achieved.
- The refurbishment of the Cascade Chute was completed in March 2023, to minimise dust during Berth 4 loading. MWPA had previously utilised a cascade chute to load light material over Berth 4. This chute was refurbished and recommissioned with two vessels successfully loaded with garnet in 2023, demonstrating a visible reduction in dust emissions. The Cascade Chute will continue to be used for all products susceptible to dust generation on Berth 4.
- A Wind and Dust Dispersion Modelling study of the Geraldton Port was completed in March 2023. This study identified problematic areas and solutions to reduce wind tunnelling and turbulence associated with port infrastructure. The study also included an assessment of the effects of additional throughput at the port and identified priority control measures to improve dust control.

2.3 AIR QUALITY MONITORING 2022/2023

2.3.1 Real-Time Particulates as PM₁₀

Particulates as PM₁₀ were monitored continually during the reporting period at MWPA's compliance air quality monitoring stations (TEOMs) and the background BAM monitoring station. Data from 2022/2023 in comparison with historical monitoring periods is summarised in Table 3.

Dust levels above the licence target level of 50 µg/m³ were recorded at compliance monitoring stations on 113 days, which is a decrease of 25 monitoring days from the previous reporting period. It is important to note that the dust monitors record dust during all wind conditions (as opposed to only winds blowing from the Port area). As discussed in Section 2.1, dust levels measured at MWPA boundary air quality monitoring stations are not necessarily related to prescribed Port activities or other port related operations or maintenance.

An analysis of predominant wind directions during each of the exceedance periods identified 53 days in which boundary monitors recording exceedances were downwind of the Port, thus providing a potential for Port operations to contribute to recorded exceedances on those dates. This equates to approximately 47% of the total recorded exceedances for the reporting year, which is down 4% from the 2021/2022 year (51% recorded).

Figure 5 displays the port influenced days and total days per month real-time monitors exceeded the 24hour target in the 2021/2022 and 2022/2023 financial years.

When compared with historical monitoring periods, the following can be noted:

- A 22% decrease in the number of Port Influenced PM10 target exceedance days from the previous year.
- The Background BAM (BB) observed an increase in the number of days above 50 $\mu\text{g}/\text{m}^3$ and background average dust levels were slightly higher than previous years.
- Berth 1 (B1) situated within the commercial harbour observed the lowest number of days above 50 $\mu\text{g}/\text{m}^3$ and the lowest average dust level.
- Port Way (PW) observed an increased number of days above 50 $\mu\text{g}/\text{m}^3$, an increase in average dust levels and an increase in maximum dust levels was recorded.
- Connell Road (CR) observed a decrease in the number of days above 50 $\mu\text{g}/\text{m}^3$, a decrease in average dusts levels and a lower maximum dust level.
- Lemmon Road (LR) observed a decrease in the number of days above 50 $\mu\text{g}/\text{m}^3$, a decrease in average dusts levels and a lower maximum dust level.
- There were 2 days of invalid real-time data at all compliance monitors recorded for the 2022/23 year. An additional 3 invalid monitoring days at Lemmon Road, and 1 additional invalid monitoring day at Port Way were recorded.

Table 3 - Real-Time Dust as PM10 Air Quality Monitoring Summary

	Berth 1 (B1)					Port Way (PW)					Connell Road (CR)					Lemmon Road (LR)					Background BAM (BB)				
	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023
Days > 50 $\mu\text{g}/\text{m}^3$	10	15	9	17	21	22	27	46	49	69	30	40	48	100	39	23	27	42	40	30	28	15	15	24	26
Port Influenced days > 50 $\mu\text{g}/\text{m}^3$	9	7	6	5	18	14	5	15	26	28	19	22	18	48	17	20	11	21	19	13	0	0	0	0	0
Average ($\mu\text{g}/\text{m}^3$)	25.3	22.7	22.5	23.5	23.8	27.5	30.4	31.8	34.9	38.2	33.2	33.6	34.7	41.7	33.6	31.1	30.0	30.1	33.1	31.5	28.3	28.2	23.7	25.5	27.4
Maximum ($\mu\text{g}/\text{m}^3$)	121.6	62.4	80.1	74.2	172.6	105.7	157.7	99.7	125.6	264.8	87.1	105.0	99.4	114.3	80.6	82.9	157.2	86.8	122.2	78.2	114.3	107.3	136.4	94.7	216.4
Minimum ($\mu\text{g}/\text{m}^3$)	4.1	2.3	4.8	4.0	4.5	4.1	3.0	6.4	3.6	6.4	5.4	8.4	6.3	11.7	3.6	7.6	8.4	3.3	5.1	6.2	5.2	5.5	3.3	5.0	5.5
No Data	0	1	4	0	2	0	3	5	5	2	0	0	4	0	2	0	1	6	0	3	29	30	28	7	129

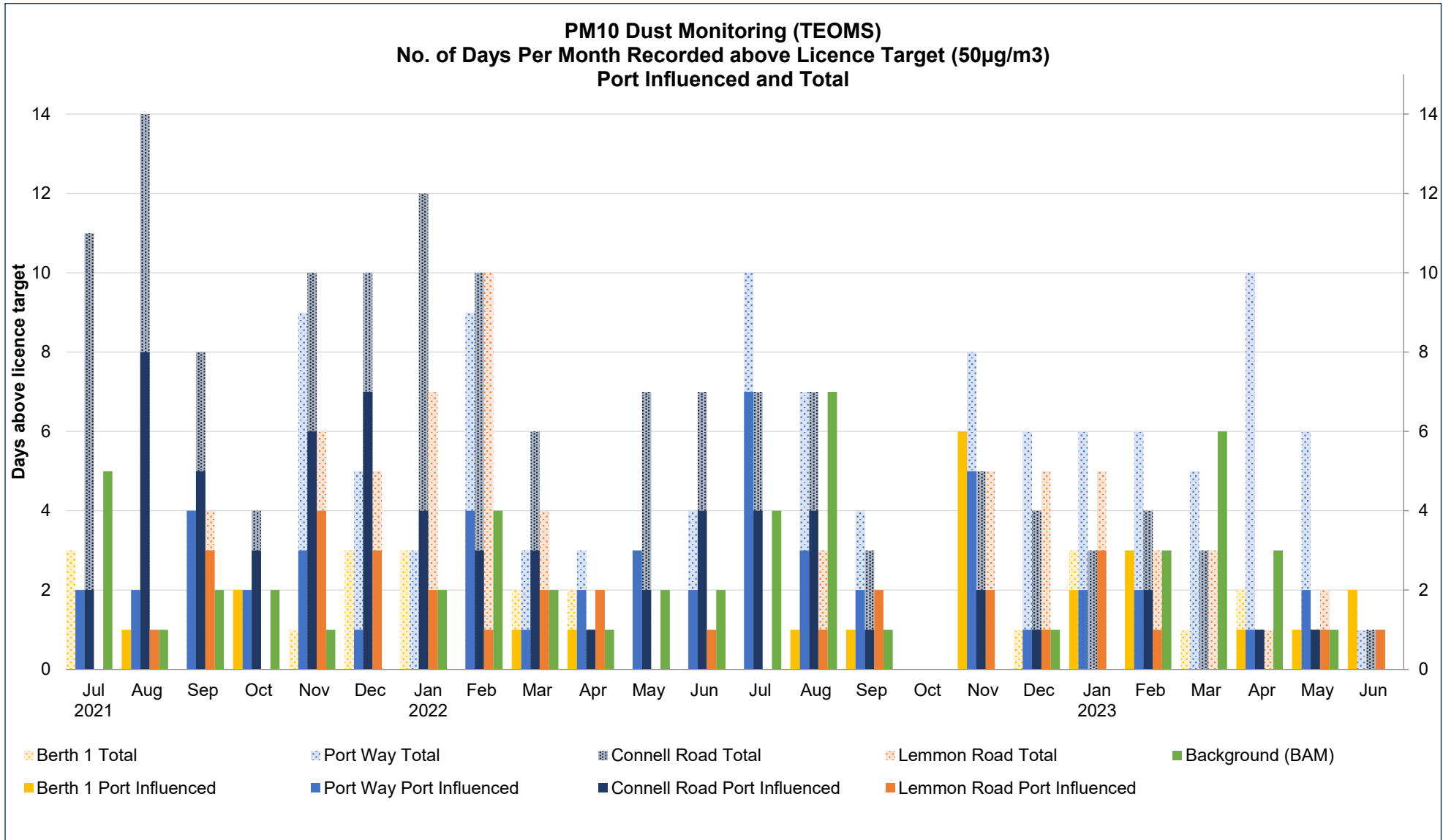


Figure 5 Port Influenced and Total days where 24-hour average exceeded Licence Target level for PM10

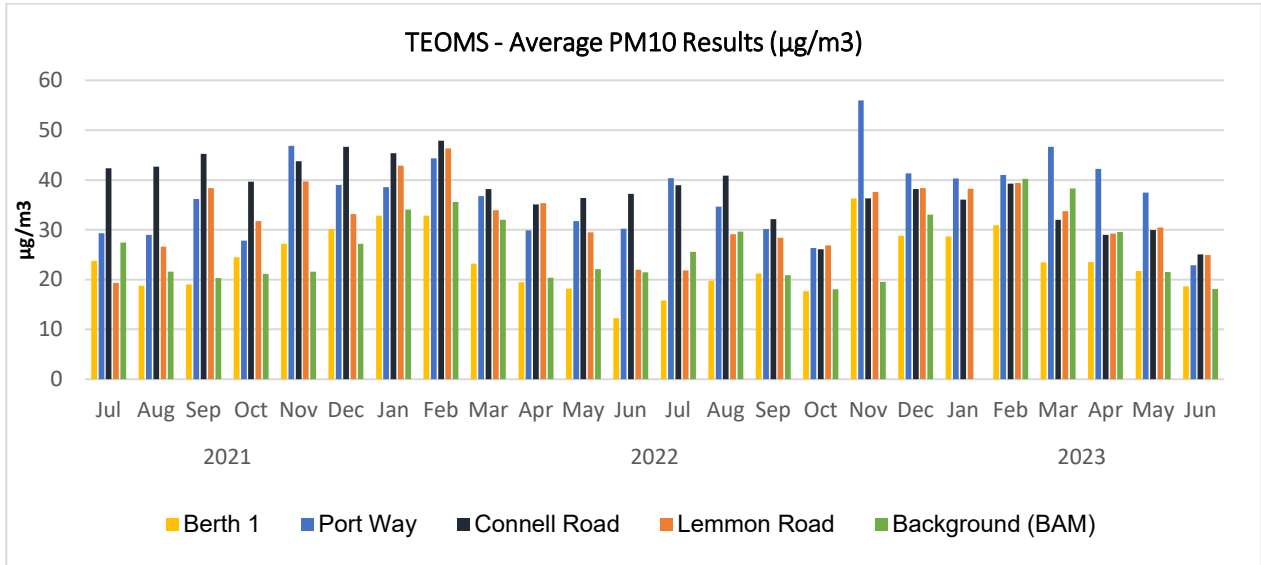


Figure 6 – Monthly Average PM10 levels during 2021/2022 and 2022/2023

Figure 6 displays the monthly average PM10 level recorded at each air quality monitoring station. The highest recorded monthly averages in 2022/2023 were recorded during November to February. Generally average dust levels were consistent with historical trends being highest over the harvest and summer period. Table 4 provides an overview of weather conditions including rainfall and maximum wind gusts experienced.

Table 4 - Geraldton Port Monthly Weather Observations

Rainfall (mm)											
Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23
88.0	137.2	53.2	22.0	14.2	2.4	0.0	0.0	4.0	3.4	30.6	104.8
Max wind gust (knots)											
NW	NNW	SW	W	WSW	S	S	S	ENE	SW	ENE	WNW
35	47	39	35	35	37	39	35	30	35	32	56

2.3.2 Monitoring of Metal Concentrate Shiploading (High Volume Air Sampling)

Each air quality monitoring station has two High Volume Air Samplers (HiVol), one fitted with a PM₁₀ inlet and the other with a TSP inlet. Samples are collected over a 24-hour sample period commencing at 12:00 noon. The sample date listed in all reports and tables is that of the day on which sampling commenced.

HiVol sampling is conducted in accordance with the requirements of MWPA’s Air Quality Monitoring Sampling and Analysis Plan (the SAP). Two types of sampling are conducted in accordance with Licence requirements:

- Concentrate sampling; and

- Background sampling.

Concentrate samples are any samples in which metal concentrates were loaded within the sample period or occurred in the 24 hours preceding the sample being taken. Concentrate sampling is a mandatory requirement for loading of metal concentrates at the Port.

Background samples are any sample in which no metal concentrates were loaded during the sample period or during the 24 hours preceding the sample being taken. Background samples were scheduled to be collected on every sixth day to allow a total of five samples to be collected per month as required under the Licence. As in previous years, this has proved to be difficult on many occasions as the date on which a background sample was scheduled concentrate loading was either occurring, or had occurred during the previous 24 hours, thus requiring the background samples to be rescheduled.

Within the 2022/2023 reporting period, the required number of background samples as stipulated in Schedule 2 of the Licence were not collected on three occasions in August 2022, November 2022, and May 2023 (4 out of the required 5 samples were completed in each month). Background monitoring was short by one sample in August 2022 due to two concentrate vessels loading in the final week of the month. In May 2023, there were 6 concentrate vessels loaded preventing the scheduling of the 5th background sample. In November 2022 the 5th background sample was not collected due to a scheduling error. In accordance with monitoring procedures the missed background samples were logged in MWPA's Incident Management System (CAMMS).

To meet the requirements of the SAP over the 2022/2023 reporting period a total 179 HiVol sampling days were required to be analysed. This is 10 more than the 2021/2022 monitoring period where 169 sampling days were required. The actual number of samples analysed from each HiVol is listed in Table 5. A small number of samples were deemed invalid due to power supply failures and equipment failures. Successful collection and analysis of the required samples was very high with approximately 98 % of the required TSP and PM₁₀ HiVol samples successfully completed.

Table 5 - Number of HiVol Samples Analysed

Monitoring Station	Samples Analysed			
	Count PM ₁₀ 2021/2022	Count PM ₁₀ 2022/2023	Count TSP 2021/2022	Count TSP 2022/2023
Port Way	110	118	164	174
Lemmon Road	110	118	166	174
Connell Road	110	118	166	174
Berth 1	110	118	166	175

2.3.2.1 High Volume Sampling - Particulates as PM₁₀

HiVol sampling of particulates as PM₁₀ is collected during discrete periods of metal concentrate shiploading and for background sampling. Continuous monitoring of particulates as PM₁₀ is provided by

the MWPA TEOM monitoring stations and provides a more complete data source for analysis. PM₁₀ HiVol levels are therefore not presented in this report (can be made available on request).

2.3.2.2 High Volume Sampling - Particulates as TSP

Samples from TSP HiVol samplers are analysed to determine total dust levels. A summary of the monitoring results for the 2021/2022 and 2022/2023 monitoring periods is presented in Table 6.

Particulates as TSP were recorded above the 24hr average target level of 90µg/m³ over a total of 192 days during the reporting period, compared to 263 days in 2021/2022, which is a 27% reduction. While an assessment of port influence on these recorded days is not routinely undertaken, it is expected that approximately 50% of exceedance days may be attributed to non-port related activity (similar to real-time PM10 monitoring, Section 2.3.1).

Table 6 - HiVol Particulates as TSP Monitoring Summary

Monitoring Station	Particulates as TSP Target = 90 µg/m ³					
	Average 2021/2022 (µg/m ³)	Average 2022/2023 (µg/m ³)	Maximum 2021/2022 (µg/m ³)	Maximum 2022/2023 (µg/m ³)	Count >90 2021/2022 (#, %)	Count >90 2022/2023 (#, %)
Port Way	81	77	410	420	55, 34%	39, 22%
Lemmon Road	95	83	250	210	74, 45%	66, 38%
Connell Road	112	92	360	240	116, 70%	77, 44%
Berth 1	49	54	150	460	18, 11%	10, 6%

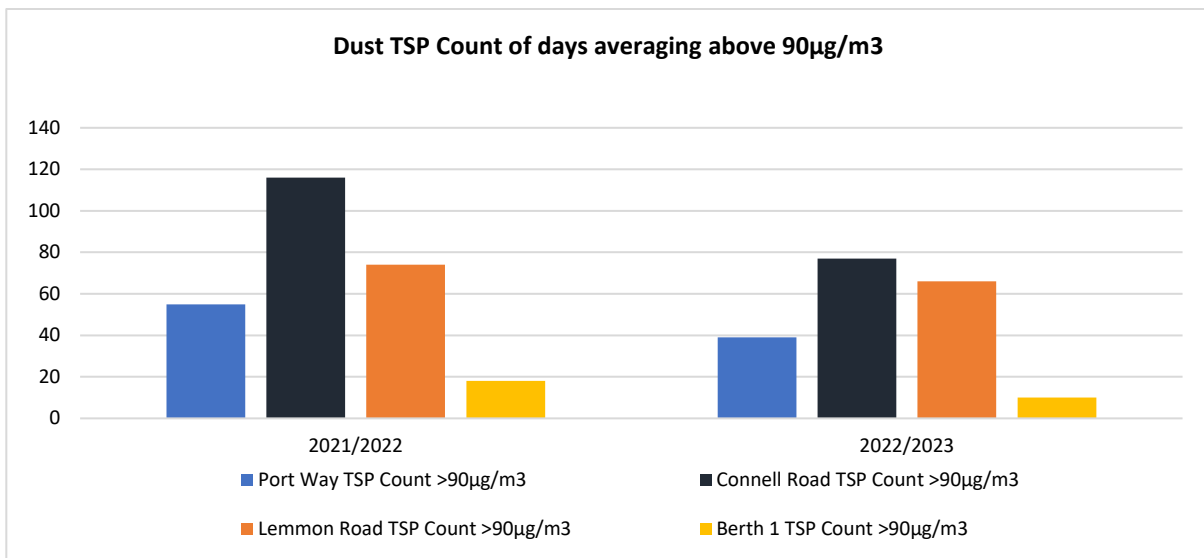


Figure 7 - Particulates as TSP for 2021/2022 and 2022/2023

2.3.2.3 High Volume Sampling - Copper as PM₁₀

During this monitoring period a total of 17 vessels were loaded with copper concentrates either over the Berth 4 BHF or via containers at Berth 6. A total of 186,966MT of copper concentrate was loaded during 2022/2023.

No exceedances of the licence target levels for copper (1.0 ug/m³) occurred during the reporting period.

There was a reduction of the average levels of copper in 2022/2023 measured across all monitoring locations compared to 2021/2022. Figure 8 displays the annual average concentration of copper in HiVol samples for each monitoring location. Figure 9 displays each individual result for copper as PM₁₀ in 2021/2022 and 2022/2023.

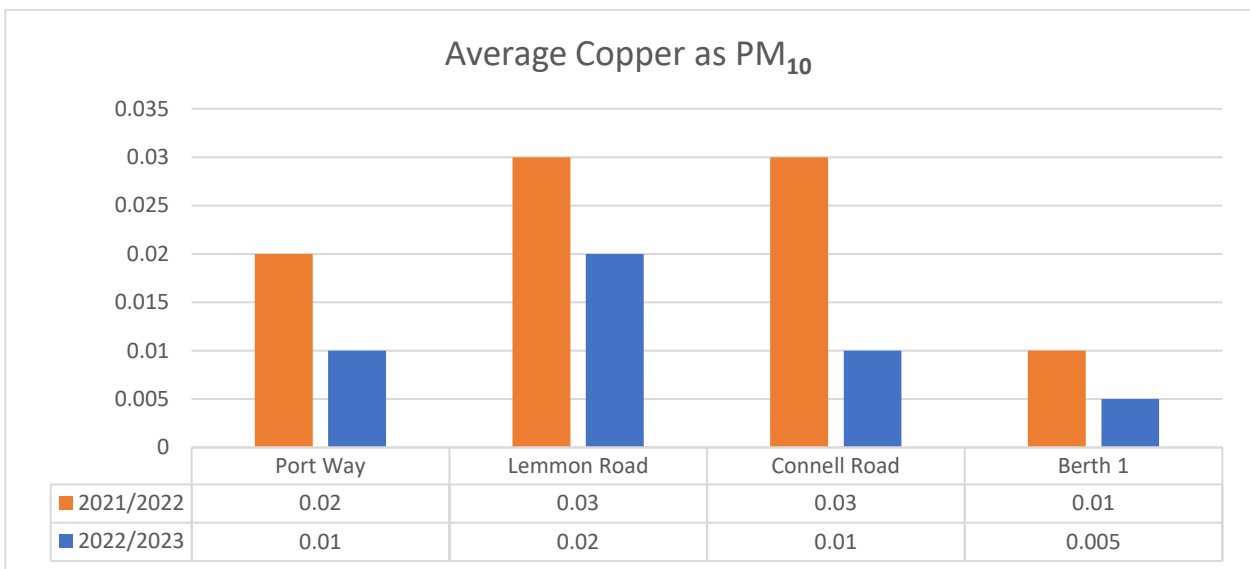


Figure 8 - HiVol Copper as PM₁₀ - Monitoring Summary

**COPPER PM10
ENVIRONMENTAL LICENCE TARGET = 1.0 UG/M3**

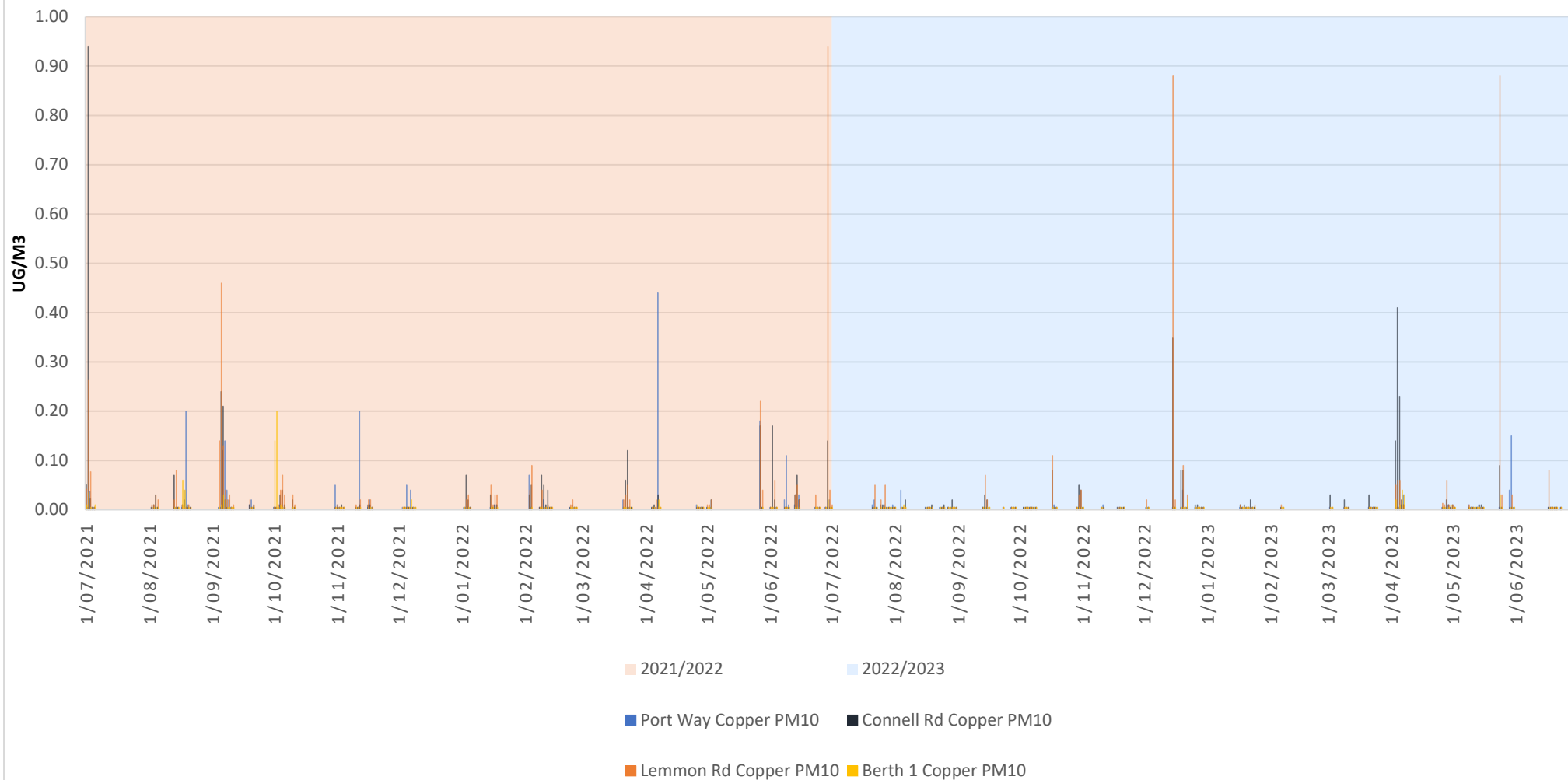


Figure 9 - 2021/2022 and 2022/2023 Copper Levels in Dust as PM10

2.3.2.4 High Volume Sampling - Nickel as TSP

During this monitoring period a total of 5 vessels were loaded with nickel concentrates via containers at Berth 6. A total of 71,037MT of nickel concentrate was loaded during 2022/2023.

Two exceedances of the licence target levels for nickel ($0.14 \mu\text{g}/\text{m}^3$) occurred during the reporting period.

1. The MV Western London loaded 15,025 MT of Nickel Concentrate from 06 – 08 October 2022. On 06 October 2022, the Connell Road HiVol recorded a concentration of $0.22 \mu\text{g}/\text{m}^3$ of Nickel as TSP. MWPA reported the exceedance to DWER as required under the Licence, via the Pollution Watch Service (ICMS 67205).

An investigation of the exceedance was completed, and corrective actions established to reduce the likelihood of a re-occurrence. The outcomes of the investigation were reported by MWPA to DWER via email on 08 December 2022.

2. MV IVS Knot loaded 15,500 MT of nickel concentrate from 13 to 15 May 2023. The Connell Road monitoring station recorded $0.29 \mu\text{g}/\text{m}^3$ of nickel as TSP, which exceeded the target of $0.14 \mu\text{g}/\text{m}^3$. All other monitoring results for the period were below the licence target level for nickel. The exceedance was reported to DWER (ICMS 70476) and an ICAM investigation completed. The following corrective actions were implemented to ensure future shipments of nickel concentrate comply with licence target levels:
 - Re-engineering of the rotabox tipping mechanism was undertaken to prevent product carry back on trucks and reduce the need for manual removal by operators. Initial modifications completed have shown positive results. This will be monitored on future shipments to ensure ongoing effectiveness.
 - A new hatch mounted dry fogging system has been procured by QUBE and will be utilised on all future shipments. The new system provides more extensive fog cover as well as finer fog droplet particles to improve capture and containment of dust from the vessel hold.
 - An improved road sweeping regime will be implemented on future shipments, including the truck circuit roadway adjacent to Gate 3.

Figure 10 displays the annual average concentration of nickel in HiVol samples for each monitoring location. Figure 11 displays each individual result for nickel as TSP in 2021/2022 and 2022/2023.

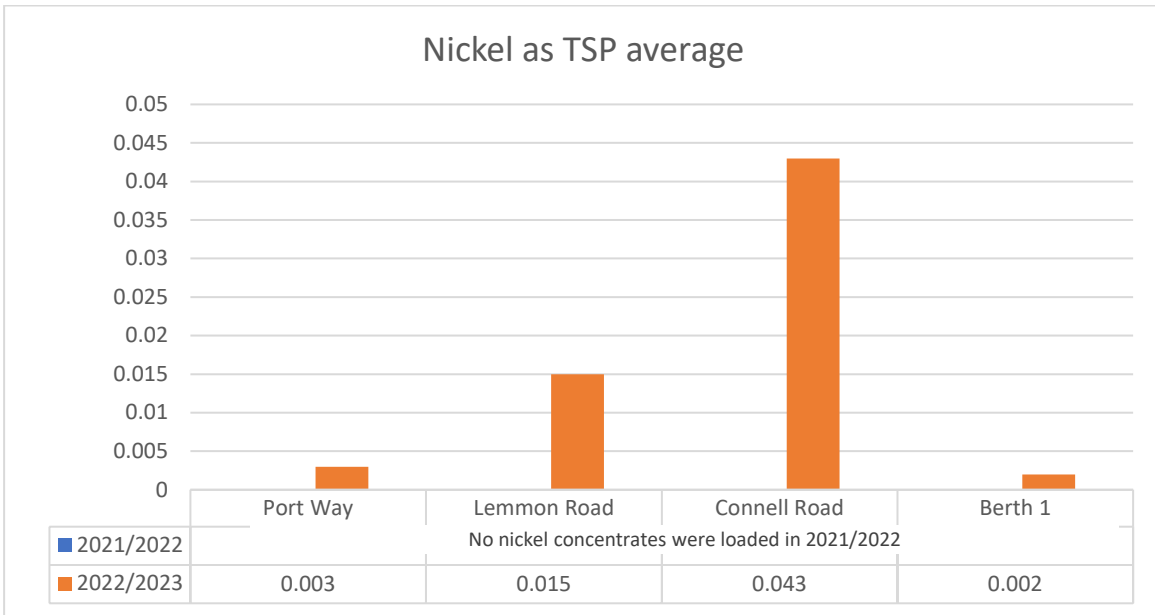


Figure 10 - HiVol Nickel – Annual TSP Average - Monitoring Summary

NICKEL TSP
ENVIRONMENTAL LICENCE TARGET = 0.14 UG/M3

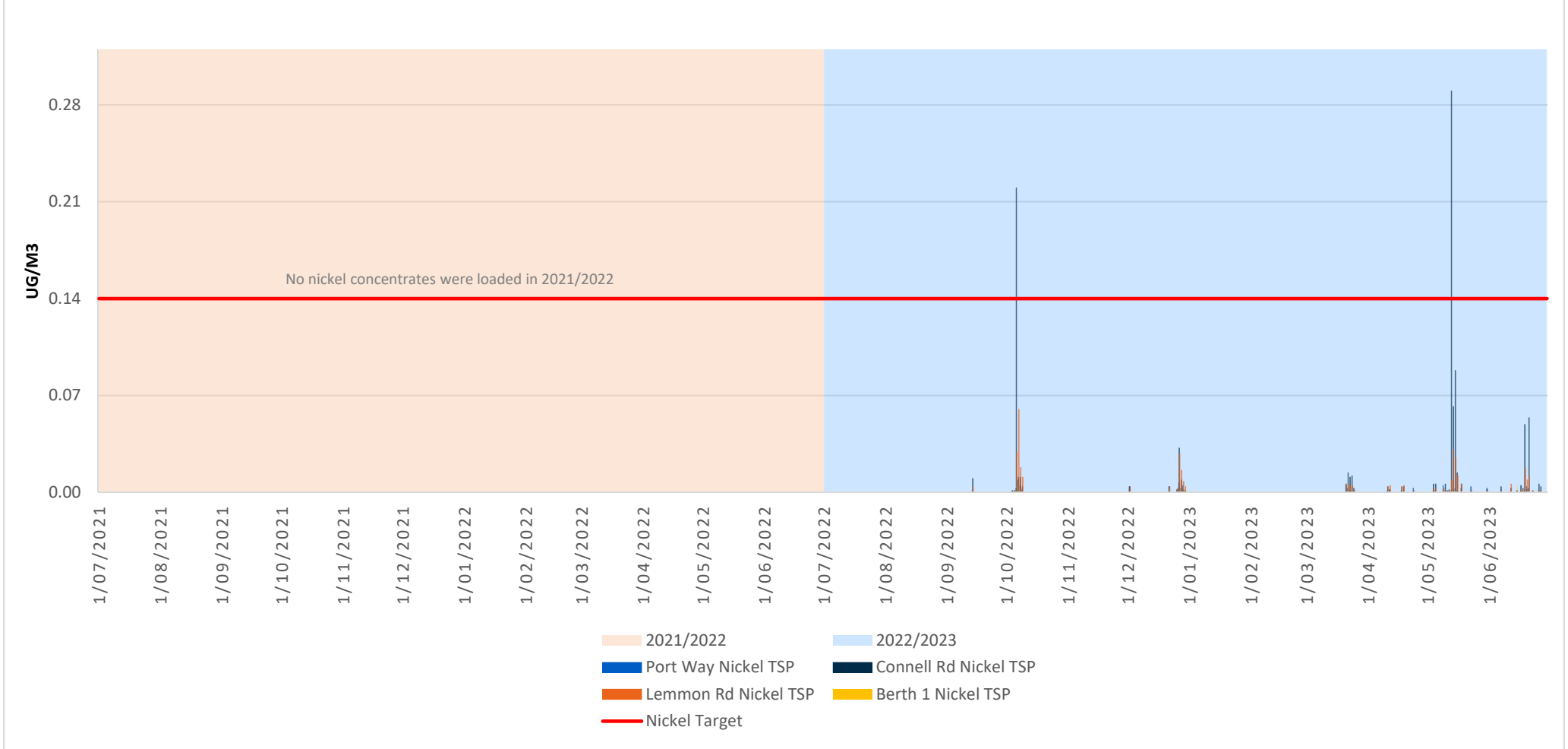


Figure 11 - 2021/2022 and 2022/2023 Nickel Levels in Dust as PM10

2.3.2.5 High Volume Sampling - Manganese as PM₁₀

During the 2022/2023 reporting period no vessels were loaded with manganese ore. MWPA completed monitoring for manganese as PM₁₀ continuously during shiploading events since November 2017, despite no shipments of manganese ore being undertaken.

Figure 12 displays the annual rolling average for manganese as PM₁₀. All recorded levels are below the licence target level of 0.15 µg/m³.

MWPA currently has no customer agreements in place to export manganese via the Geraldton Port.

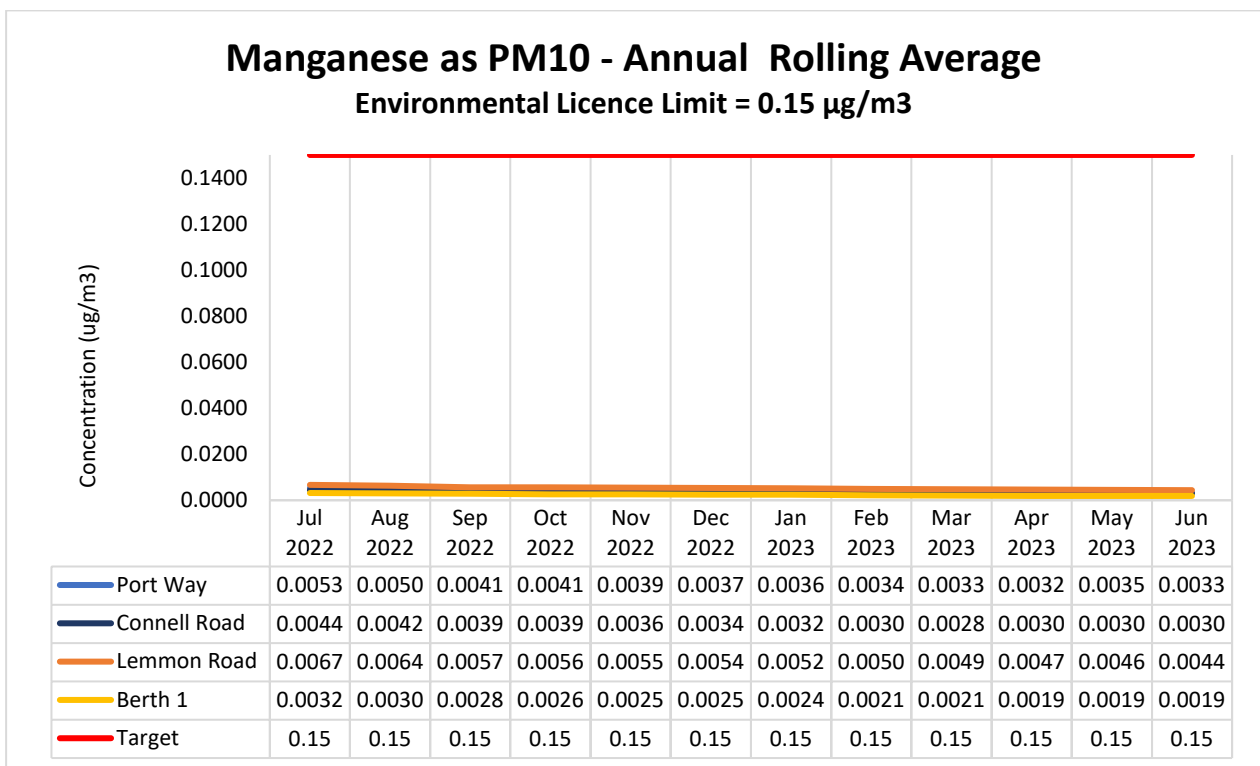


Figure 12 - Annual Rolling Average Manganese as PM₁₀

2.3.2.6 High Volume Sampling - Lead as PM₁₀

During this monitoring period a total of 4 vessels were loaded with lead concentrates either over the Berth 4 BHF or via containers at Berth 6. A total of 26,928MT of lead concentrate was loaded during 2022/2023.

One exceedance of the licence target level for lead (0.5 µg/m³) occurred during the reporting period.

MV Bronze Lady loaded 11,091 MT of lead concentrate from 27 April to 01 May 2023 via Berth 4. On 26-27 April 2023 Lemmon Road monitoring station recorded 0.55 µg/m³ of lead as PM₁₀, which exceeded the target of 0.50 µg/m³. All other lead monitoring results for the period of loading were below the licence target levels. The exceedance was reported to DWER (ICMS 70339) and an ICAM investigation completed which identified the following contributing factors:

- Product oxidisation forming lumps, created abnormal loading conditions with higher potential for dust to be generated from the partially open conveyor system on Berth 4; and
- Light ESE wind conditions allowed dust to migrate from Berth 4 to the Lemmon Road monitor.

No further lead concentrate shipments are anticipated to be loaded via Berth 4. All lead concentrate is expected to be loaded via rotainers on Berth 6 in future. The following controls remain in place for all lead concentrate loading operations:

- Retainer loading is undertaken in accordance with MWPA Loading of Packaged Bulk Minerals Procedure with close monitoring and adherence to wind loading limits.
- Product moisture conditioning is undertaken to above Dust Extinction Moisture (DEM) level where possible. Moisture data is provided to MWPA prior to shiploading commencing.
- A vessel hold fogging system is in place for the duration of shiploading to contain dust within the hold.
- Rotainers are emptied as low as possible within the hold to reduce the product drop height.
- Sweeping of the berth is undertaken for the duration of shiploading, using a vacuum sweeper.

In addition, MWPA is progressing the following actions:

- A metal concentrate dust modelling study is currently being undertaken by a specialist consultant engaged by MWPA. This will include revision of wind and tonnage loading limits for all metal concentrates, including lead.
- Real-time monitoring capability for metal concentrates is being investigated.

Figure 13 displays the annual average concentration of lead in HiVol samples for each monitoring location. Figure 14 displays each individual result for lead as PM₁₀ in 2021/2022 and 2022/2023.

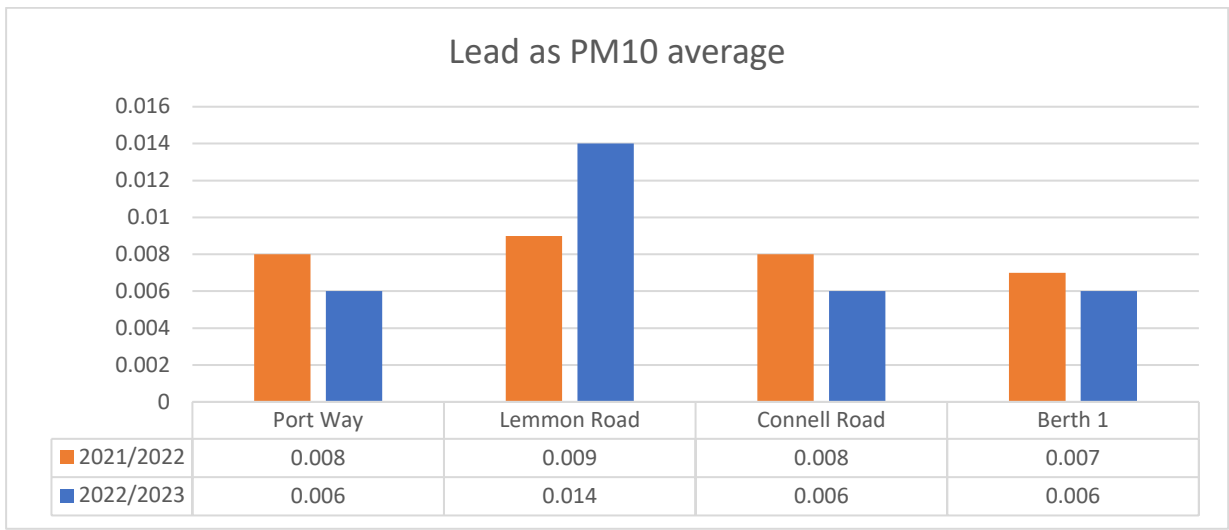


Figure 13 – Annual Average HiVol Lead as PM10

LEAD AS PM10
ENVIRONMENTAL LICENCE TARGET = 0.5 UG/M3

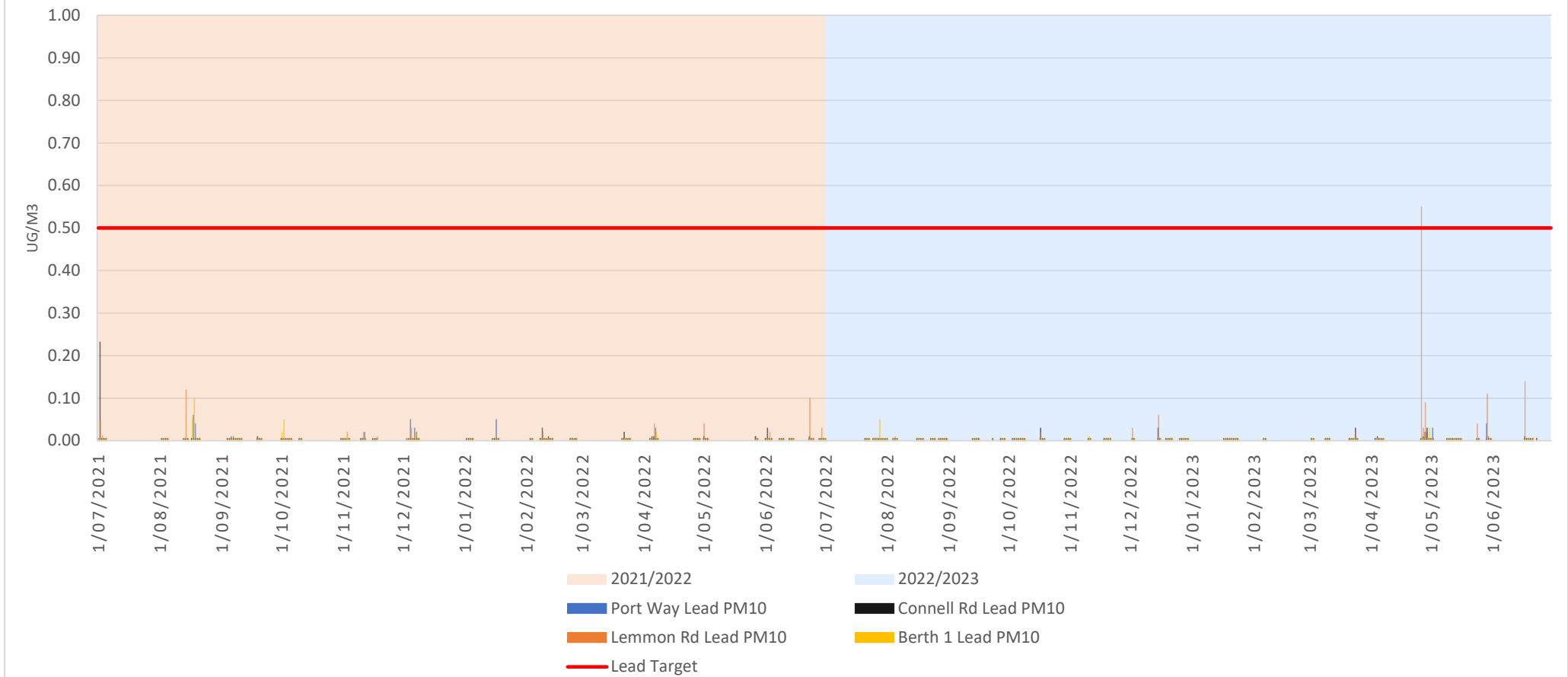


Figure 14 - 2021/2022 and 2022/2023 Lead Levels in Ambient Air as PM₁₀

2.3.2.7 High Volume Sampling - Lead as TSP

As displayed in Figure 15 the 3-month rolling average for lead as TSP remained well below the licence limit of 0.5 µg/m³. The maximum 24-hour TSP level recorded was 2.9 µg/m³ at Lemmon Road in April 2023, which resulted in a small increase in the 3-month rolling average for the following two months.

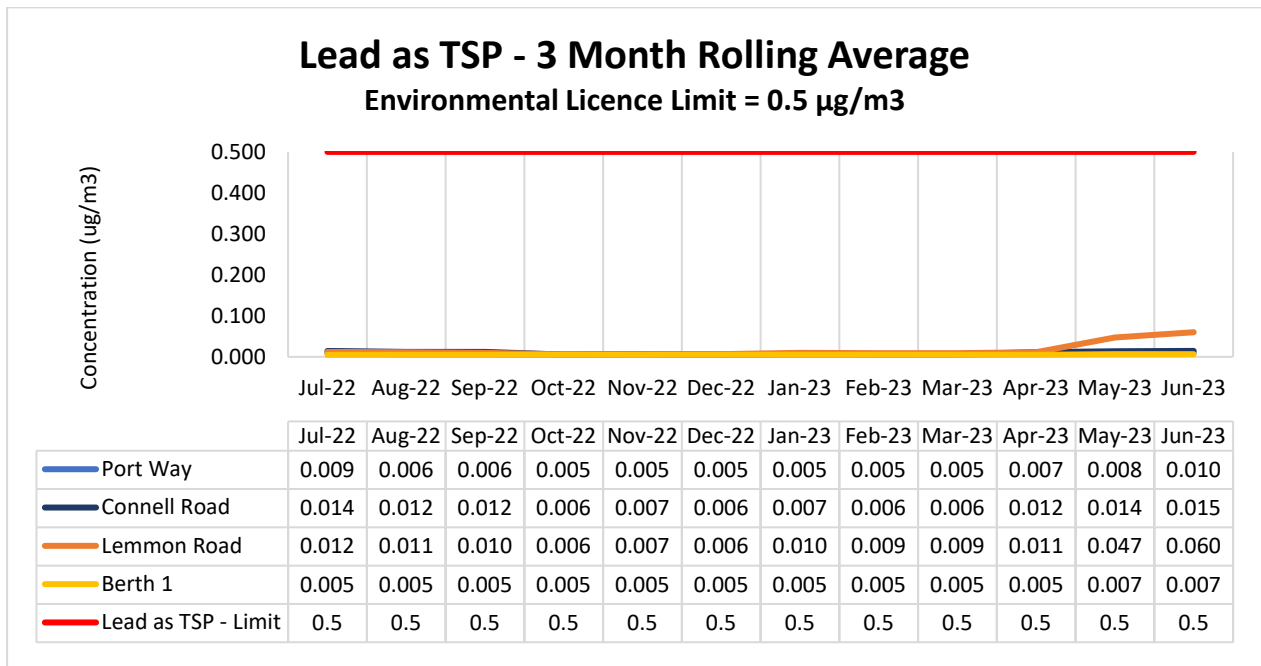


Figure 15 - Three Month Rolling Average Lead as TSP

2.4 AIR QUALITY MONITORING EQUIPMENT – RELIABILITY, MAINTENANCE & CALIBRATION

All MWPA air quality monitoring equipment is maintained and calibrated in accordance with AS/NZ Standards and manufacturers specifications, summarised in Table 7. MWPA high volume air samplers are serviced and calibrated every two months. TEOM and BAM samplers are calibrated and serviced every three months by a qualified external specialist. Certificates of calibration are recorded in MWPA’s document management system and can be provided upon request.

The TEOM dust monitors were operated continuously during the reporting period with little downtime. There were 2 occasions where widespread power outages caused all monitoring locations sampling days to be invalid. In addition;

- Lemmon Road experienced 3 invalid sampling days due to power and equipment failure;
- Port Way experienced 1 invalid day due to a localised power outage.

The Background BAM monitor recorded invalid data on 129 occasions due to a major fault with the unit requiring offsite repair. This was reported in MWPA’s Quarterly Air Quality Monitoring Reports. The BAM unit is not an Environmental Licence compliance monitoring station; therefore, loss of data is not a non-compliance with the Environmental Licence, however, is a non-compliance with the MWPA Air Quality Monitoring SAP.

All invalid sampling days of compliance monitors were reported in the MWPA incident management system (CAMMS) and further details provided in the 2022/2023 Annual Audit Compliance Report (AACR).

During the reporting period there were three incidents where continuous monitoring of PM₁₀ and TSP during shiploading of metal concentrate events was not achieved. Two monitoring non-compliances were related to operator error and one was due a power outage. Both incidents are reported in detail in the AACR.

Table 7 - Air Quality Monitoring Equipment Calibration Standards

Air Quality Monitoring Equipment		Australian Standard
High Volume Air Samplers	PM10	AS/NZS 3580.9.6:2015
	TSP	AS/NZS 3580.9.3:2015
TEOM		AS/NZS 3580.9.8:2008(R2018)
BAM		AS/NZS 3580.9.11:2016

3 Sediment Quality

3.1 OVERVIEW

MWPA’s sediment monitoring program is conducted in accordance with the MWPA Sediment Sampling and Analysis Plan. The key objectives of the sediment monitoring program are to:

- Inform MWPA of the status of the contaminants in harbour sediments and their associated ecological risk;
- Comply with Condition 3.2.2 and Table 3.2.2 of the licence, including the field sampling and laboratory analysis for concentrations of parameters outlined in Table 3.2.2 of the licence; and
- Compare 2023 metal concentrations to previous monitoring results and assess spatial and temporal trends.

MWPA commissioned O2 Marine to undertake its 2023 Sediment Monitoring Program, with samples collected between 1st – 3rd May 2023.

Under licence condition 3.2.3, MWPA is required to provide an investigation report to DWER within six weeks of becoming aware of an exceedance of the lowest stipulated guideline values for the parameters specified. Interim results from the 2023 sediment monitoring program were provided to MWPA on 24th July 2023. As the six-week timeframe has this year aligned with the submission date of this 2022/23 Annual Environmental Report, the 2023 sediment exceedance investigation report is provided in this report.

The final O2 Marine sediment monitoring report was provided to MWPA on the 10th August 2023 and is provided as Attachment 1.

MWPA’s 2023 compliance with the ambient monitoring requirements of the licence requirement is outlined in Table 8. Two additional monitoring sites (CH7 and CH8) to those listed in the licence are sampled annually, to measure possible impacts associated with Berth 6 shiploading activities.

Table 8 - Licenced Ambient Sediment Quality Monitoring Requirements and 2023 Compliance

Monitoring Locations	Parameter	Licence Requirement	MWPA 2023 Statement of Compliance
CS1, CS2, ORA1, ORA2, FBH1, FBH2, CH1, CH2, CH3, CH4, CH5, CH6, CH9, CH10, YM1 AND TB1	Aluminum, Arsenic, Cadmium, Copper, Lead, Mercury, Nickel, Zinc, Phosphate In mg/kg	Sediment sampling in accordance with MWPA Sampling Analysis Plan, annually prior to 30 June in each year	Samples collected 1 st to 3 rd of May 2023. Results received 24 th of July 2023, via draft report.
CS1, CS2, ORA1, ORA2, FBH1, FBH2, CH1, CH2, CH3, CH4, CH5,	Polycyclic Aromatic Hydrocarbons (PAH), Tributyltin (TBT), Total Organic Carbon (TOC),	Sediment sampling in accordance with MWPA Sampling Analysis Plan,	Conducted during 2022 sediment monitoring program, therefore not required to be analysed during 2022/23 reporting period.

Monitoring Locations	Parameter	Licence Requirement	MWPA 2023 Statement of Compliance
CH6, CH9, CH10, YM1 AND TB1	In mg/kg Particle Size Analysis (PSA) %	prior to 30 June every second year	
CS1, CS2, ORA1, ORA2, FBH1, FBH2, CH1, CH2, CH3, CH4, CH5, CH6, CH9, CH10, YM1 AND TB1	Chromium, Cobalt, Selenium, Vanadium In mg/kg	Sediment pore water sampling, annually when Iron Concentrate has been loaded within Annual Period	No iron concentrate loaded within the period.

Acronyms: CH – commercial harbour; FBH – fishing boat harbour; CS – control site; ORA1 – outer reclamation area; OR2 – mouth of FBH; TB – Town Beach; YM – tug pens.

3.2 SEDIMENT MONITORING RESULTS – 2023

Metals

The presence of metal contamination within sediments of the Commercial Harbour (CH) and Fishing Boat Harbour (FBH), as in previous monitoring periods, was confirmed in the 2022/23 study.

In accordance with the licence, sediment monitoring results (the median concentration of each sample site) are assessed against toxicant default guideline values (DGV) and the upper guideline values (GV-High) as defined by ANZG 2018 for marine sediments.

DGVs indicate the concentrations below which there is a low risk of unacceptable effects and are used to establish aquatic ecosystem protection levels. In contrast, GV-high values indicate a potential for high-level toxicity problems and are not guideline values for ecosystem protection. GV-high could be considered more likely to be associated with biological effects than the DGV, but the extent of that impact is not necessarily known (ANZG 2000).

Table 9 provides an overview of the 2023 exceedances of toxicant default guideline values (DGV) and the upper guideline values (GV-High) for the metals where ANZG 2018 guideline values exist. The exceedances are presented spatially in Figure 16.

Concentrations of metals in 2023 are consistent with results from previous years, being higher in the CH and FBH than at control sites and those areas outside the two harbours. The general trend across the CH, is of a stable/slightly decreasing concentrations of the main contaminants of concern. However, these contaminants still occur at concentrations that exceed DGVs at most berth pocket monitoring locations, with zinc and copper exceeding the GV-high at several sites. The FBH and tug pen exhibit increasing trends in concentrations of copper and zinc over time, with several sources external to MWPA operations identified as having contributed to contaminant levels.

Table 9 - 2023 Monitoring exceedances of ANZG 2018 Guideline Values

Area ID / sample sites	2023 Monitoring Results – exceedances of ANZG 2018 Guideline Values
Berth 3/4 (CH1, CH2, CH3, CH4)	Cadmium exceeded the DGV at two sites Copper exceeded the DGV at all Berth 3 /4 sites. Lead exceeded the DGV at two sites Zinc exceeded the DGV at all sites and the GV-High at two sites
Berth 5 (CH5, CH6)	Copper exceeded the DGV at all Berth 5 sites. Zinc exceeded the DGV at all Berth 5 sites.
Berth 6 (CH7, CH8)	Copper exceeded the DGV at all Berth 6 sites Zinc exceeded the DGV at one site
CH Harbour Basin / Entrance (CH9, CH10)	No DGVs were exceeded in the CH basin/entrance
FBH (FBH1, FBH2)	Copper exceeded the DGV at both FBH sites Zinc exceeded the DGV at one FBH site. TBT exceeded the DGV at both sites.
Tug Pen (YM1)	No DGVs were exceeded at the Tug Pen sample site
Control and Reference Sites (CS1, CS2, ORA1, ORA2, TB1)	No DGVs were exceeded outside of the FBH and CH.

In 2023, for the locations that recorded concentrations above the DGV for copper and lead; and above the GV-high for zinc, when compared to background levels (using lithium normalisation), the monitoring indicates both harbours to have sediments with ‘Moderate’ to ‘Extremely Severe’ enrichment of these metals.

Cadmium was also recorded at above the DGV at a few sites in the CH, with ‘Moderate’ to ‘Moderately Severe’ enrichment when compared to background (using lithium normalisation).

Enrichment factors above ‘Moderate’ are not considered to demonstrate the achievement of ecosystem protection objectives for port areas which are generally accepted to be that of a slightly to moderately disturbed environment.

DGVs are not provided, by ANZG (2018), for aluminium, iron and vanadium. Comparison of results for these parameters with natural background concentrations determined enrichment ranging from ‘No Enrichment’ to ‘Minor’ concentrations within the CH and FBH for aluminium and vanadium. A higher enrichment factor of ‘moderately severe’ was reported for iron at most sites in the CH.

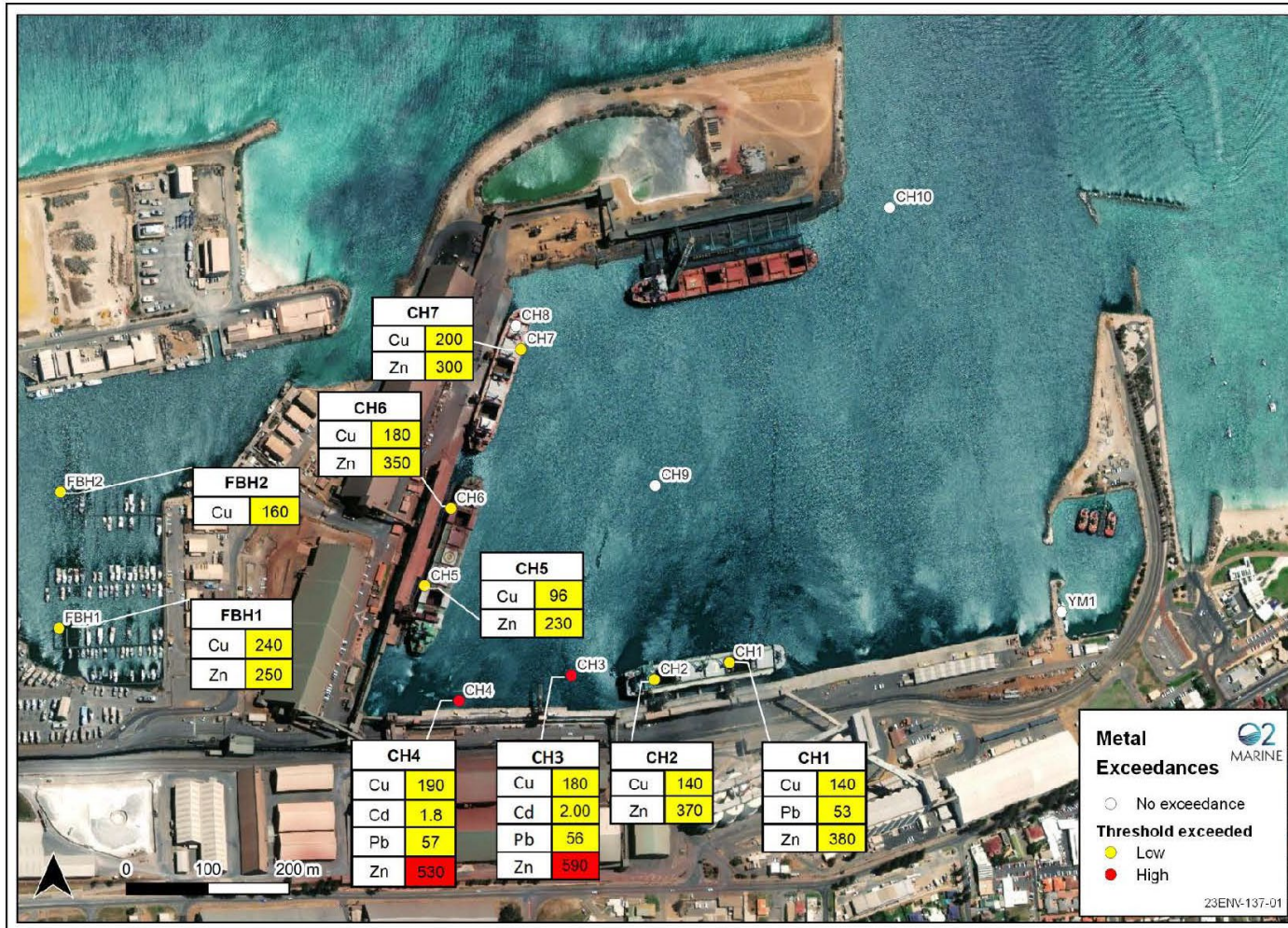


Figure 16 - Geraldton Port 2023 Sediment Sampling Locations and Metal Concentration Exceedances

Figure 16 shows metal concentrations (mg/kg) and exceedances of ANZG (2018) guideline values. Guideline values exist for arsenic, cadmium, copper, lead, mercury and nickel. No ANZG guideline values exist for iron, aluminium or vanadium.

Phosphorus

Total phosphorus (TP) concentrations in sediments in 2023 monitoring were generally lower when compared to previous sampling programs in 2015, 2021 and 2022.

DGVs are not provided for phosphorus by ANZG (2018), so a site-specific interim DGV has been calculated. The only exceedances of the interim site-specific DGV for phosphorus were at one Berth 3 site and offshore control site 1.

Filterable reactive phosphorus values for all sampled sites were below the LoR, except for one site at the mouth of the FBH, indicating most TP occurs in particulate forms and is therefore unavailable for uptake by marine organisms.

3.3 INVESTIGATION OF EXCEEDANCES

License condition 3.2.3 requires investigation of exceedances and reporting of findings.

Known sources of metal historical contamination are not considered to require update from those identified in the 2022 sediment exceedance report. No new activities, products or handling methods related to metal concentrate loading have been introduced at the Port in 2022/23 that present an increased risk of metal contamination to harbour sediments.

As the reported concentrations of metal in the CH are generally similar to 2022 levels, it is considered that the CH's elevated metal in sediment concentrations are primarily due to historical port activities. However, continued port operations as a land use has potential to cause contamination, meaning controls for current operations are important in reducing the likelihood of further sediment contamination. In the CH, Nickel was exported during the 22/23 reporting year, having most recently been exported in 2020. Nickel shipping in 2022 is not considered to have affected nickel in sediment concentrations as reported levels remain comparable to recent historical levels (with no exceedance of the DGV at any location).

The FBH and tug pen exhibit increasing trends in concentrations of copper and zinc over time, with several sources external to MWPA's controlled operations identified as contributing to contaminant levels.

MWPA has reviewed the following considering the 2023 sediment exceedances:

- Risk to the marine environment presented by the elevated metal concentrations; and
- Control measures and plan for remedial actions.

The above considerations are discussed below.

3.4 RISK TO ENVIRONMENT

Assessment of contaminant concentrations against guideline values is the first step in a tiered decision-tree approach to determine whether an environmental risk is present (ANZG 2018). To date, further investigations commissioned or implemented by MWPA include:

- Lithium normalisation – conducted annually in recent years to establish levels of enrichment within the harbours compared to reference and control sites. This process enables more accurate comparison of reported concentrations at impacted sites to control sites.
- Bioavailability assessment via dilute acid extraction (DAE) -- conducted in 2014 and 2019. This test is used as an indicator of bioavailability of contaminants. MWPA is committed to conducting DAE on a five-yearly basis as a minimum.
- Bioavailability assessments via elutriate assessment – conducted in 2014, 2019, and 2020. These tests are designed to measure and predict the release of contaminants to the water column. MWPA is committed to conducting elutriate testing on a five-yearly basis as a minimum.
- Passive water quality monitoring results within the CH – presently conducted monthly to monitor soluble metal concentrations.

As reported by O2 Marine (2023), ‘whilst no bioavailability assessment was undertaken during the 2023 monitoring, results for most raw contaminants were reported at concentrations similar to or lower than those reported in previous investigations. Therefore, bioavailability assessments undertaken in 2014 and 2019/2020 which identified DAE concentrations for key contaminants below the DGV and all elutriate results (except zinc) below the 95% species protection levels, are considered appropriate to draw the conclusion that key contaminants in the 2023 monitoring pose a similarly low level of risk to water quality and ecosystem health.’

O2 Marine (2023) have recommended that bioavailability and elutriate testing is conducted during the 2024 annual sediment monitoring to provide additional confidence that metals reporting high levels of enrichment which exceed DGVs continue to pose a low level of risk to water quality and ecosystem health within and outside the CH, including within the FBH where some metal concentrations are increasing. MWPA is committed to implementing this recommendation.

3.5 CONTROL MEASURES AND REMEDIAL ACTIONS

Control actions

To prevent bulk material handling operations contributing to or further enriching concentrations of metals within the CH, MWPA continues to review existing controls for metal concentrate handling at the port. MWPA is continuing to work with producers to transition metal concentrate handling to Berth 6 via

rotainer operations. This is expected to occur in early 2024, with remaining copper and zinc concentrate exports moving from Berth 4 to Berth 6, once rotainers become available.

There were three incidents during the reporting period where metal concentrate loading resulted in exceedance of air quality criteria. Two related to nickel concentrate loading on Berth 6 and one related to lead concentrate loading on Berth 4. All three incidents were investigated via ICAM and corrective actions implemented to reduce emissions on future shipments. Details of these incidents and corrective actions are provided earlier in this report in section 2.3.2.4 and section 2.3.2.6. These improved controls are considered important to reduce impact to air quality, in addition to fugitive dust impacts to the harbour marine environment.

As demonstrated in the 2023 sediment sampling, metal concentrate trends are generally slightly declining within the CH indicating limited impact from current operations. Annual review of trends of contaminant concentrations reported within MWPA's ongoing marine monitoring programs helps to assess the effectiveness of control measures and establish how concentrations and enrichment levels are changing over time.

Remedial actions

The primary remedial action MWPA has been implementing to address the elevated concentrations of contaminants in the shipping harbour is dredging.

While most metal concentrations are demonstrating a long-term downward trend over time, the concentrations of metals in the CH haven't been significantly altered by the last two maintenance dredging programs (2012 and 2021).

As outlined in the 2022 sediment exceedance investigation report, MWPA has reviewed its dredging methodology and identified that as harbour metals exist in fine particulate form, they are proving difficult to recover via conventional maintenance dredging methods, which typically involves overflowing the dredge hopper and the return of entrained fine particles in overflow water to the harbour. This particle sizing has a propensity for metal-binding.

MWPA is committed to reviewing methodology of future maintenance dredging campaigns to maximise the capture and retention of fine clay and silt-sized particles (and in turn metal contaminants) to assist in reducing sediment contaminant concentrations.

3.6 SUMMARY OF KEY FINDINGS

Key findings of the 2023 sediment monitoring program include:

- Consistent with sampling in previous years, the concentrations of metals are higher in the commercial and fishing boat harbours than those areas outside the harbours and at control sites.
- Metal concentrate trends are generally slightly declining within the CH indicating limited impact from current operations. However, several contaminants still occur at concentrations which exceed DGVs at most berth pocket monitoring locations, with zinc and copper exceeding the GV-high at several sites.
- While trends within the FBH are increasing over time, during the 2023 monitoring, average concentrations of these metals generally decreased relative to results from previous years. It is likely there is an ongoing source from the non-MWPA operated activities of the FBH.
- As soluble metals are not being detected at levels that would be considered harmful to marine ecosystems, it suggests most of the contaminants exist in a particulate form held within fine silts and clay sediments.

Please refer to the attached *O2 Marine Geraldton Port Annual Sediment Compliance Survey - 2023* (Attachment 1) for more detailed information with regards to the monitoring results.

MWPA is committed to improving its operations and long-term monitoring programs to protect the environmental values of Champion Bay.

4 Fertiliser Discharge Monitoring

Fertilisers are imported at Geraldton Port via mobile hoppers and grabs at Berth 6. Nutrients from fertilisers can result in adverse impacts on the water quality and marine ecology. Monitoring for contaminated surface water run-off from Berth 6 was conducted via the stormwater system prior to sumps discharging to the marine environment. Sampling is undertaken at humeceptors facilities rather than stormwater outlets, due to accessibility and holding capacity prior to discharging into the marine environment via the stormwater outlet.

Condition 3.2.4 and Table 3.2.3 of the Licence requires monitoring of the stormwater discharge at relevant Berths for Nitrogen and Ammonia on a campaign basis. MWPA undertakes the monitoring in accordance with the Fertiliser Discharge Monitoring SAP. This monitoring is completed each day of fertiliser handling and on the fourth day after handling has been completed.

Procedures are in place for fertiliser import to ensure spillage is prevented from entering the harbour, and product spilt to the berth is regularly swept up and removed. Water accumulated in the humeceptor is removed via vacuum truck on a regular basis, to reduce the discharge of pollutants into the marine environment and maintain operational capacity.

During this monitoring period a total of 16 vessels unloaded 147,242MT of fertiliser at Berth 6.

Table 10 - Ammonia and Nitrogen (mg/L) in SW14 Humeceptor During Fertiliser Unloading 2022/2023.

Fertiliser Vessel Name	Fertiliser Product	Start Loading	Stop Loading	Ammonia-N (mg/L)		NOx-N (mg/L)		Total Nitrogen (mg/L)	
				Average during Loading	4 days post loading	Average during Loading	4 days post loading	Average during Loading	4 days post loading
Royal Fairness	MAPSZP SSP	02/07/2022	04/07/2022	SW14 was empty – there was no water to sample					
Musky	Urea	05/07/2022	05/07/2022	SW14 was empty – there was no water to sample					
Jin Da	DAP MAP	19/08/2022	19/08/2022	SW14 was empty – there was no water to sample					
Queen Harmony	MAP	14/11/2022	15/11/2022	SW14 was empty – there was no water to sample					
Bufflehead	Urea	26/11/2022	28/11/2022	SW14 was empty – there was no water to sample					
Berge Snowdon	MOP	12/01/2023	13/01/2023	SW14 was empty – there was no water to sample					
Rosalia	MOP	24/01/2023	25/01/2023	SW14 was empty – there was no water to sample					
African Pipit	MAP	09/02/2023	10/02/2023	SW14 was empty – there was no water to sample					
Belle Etoil	Urea	19/02/2023	19/02/2023	SW14 was empty – there was no water to sample					
Woodgate	DAP MAP	04/03/2023	05/03/2023	SW14 was empty – there was no water to sample					

Fertiliser Vessel Name	Fertiliser Product	Start Loading	Stop Loading	Ammonia-N (mg/L)		NOx-N (mg/L)		Total Nitrogen (mg/L)	
				Average during Loading	4 days post loading	Average during Loading	4 days post loading	Average during Loading	4 days post loading
Berge Hallsan	Urea	10/03/2023	11/03/2023	SW14 was empty – there was no water to sample					
New Handy	Urea	02/05/2023	02/05/2023	SW14 was empty – there was no water to sample					
Cetus Bowhead	Urea	16/05/2023	18/05/2023	SW14 was empty – there was no water to sample					
Kultus Cove	Urea	20/05/2023	22/05/2023	SW14 was empty – there was no water to sample					
New Handy	Urea	25/06/2022	29/06/2022	3.7	4.7	1.03	1.1	11	15
Klara Selmer	Urea	15/06/2023	16/06/2023	SW14 was empty – there was no water to sample					

5 Summary of Complaints

Condition 4.1.4 of the Licence requires MWPA to maintain a complaints management system that records the number and details of complaints received concerning the environmental impact of port activities. Complaints and community feedback received by MWPA are registered within MWPA's incident management system (CAMMS).

During the reporting period 17 complaints were received by MWPA which are summarised in Table 11. 14 of these complaints were attributed to port operations. Complaints received during the period centred predominantly on dust emissions and the impact to leaseholders in the Fishing Boat Harbour (FBH). Two community enquiries were received regarding noise.

Table 11 - Complaints Received 2022/2023

No.	Incident Date	CAMMS Number	Incident Title	Brief Summary
1	15/07/2022	IN-26781	Community Concern – Dust Complaint	Dust complaint relating to iron-ore dust deposition on vessel in FBH
2	1/08/2022	IN-26805	Community Concern – Dust Complaint	Pen holder approached Environmental Advisor opportunistically while in the FBH and complained about iron-ore dust accumulated on vessel.
3	1/08/2022	IN-26806	Community Concern – Dust Complaint	While completing monitoring, Environmental Advisor received a complaint from a community member regarding noise from monitoring station in Bluff Point. Complainant lives across the road from the monitor and asked if monitoring unit could be insulated to reduce noise at night. Repairs were made to the unit which reduced vibration and noise.

No.	Incident Date	CAMMS Number	Incident Title	Brief Summary
4	10/08/2022	IN-26808	Community Concern – Dust Complaint	Pen holder approached Trade Advisor opportunistically while in the FBH and complained about dust accumulated on vessel.
5	11/08/2022	IN-26810	Community Concern – Dust Complaint	FBH pen holder complained about red dust accumulated on vessel and excessive cost to lacquer boat. Complainant concerned with having to clean the boat daily to stop it pitting being an aluminium vessel. The complainant contacted the media who interviewed the pen holder and later interviewed the MWPA CEO. Article was published in the Geraldton Guardian Tuesday 16 th August 2022.
6	2/09/2022	IN-26826	Community Concern – Dust Complaint	Dust complaint from FBH received regarding red dust deposition on vessel.
7	6/09/2022	IN-2683	Community Concern – Dust Complaint	Complaint received regarding grain dust in mechanical workshop on Marine Terrace. Complainant had concerns about contamination of mechanical parts in workshop, customer cars becoming excessively dusty and allergic reaction to grain dust. Grain loading operations on Berth 3 were suspended just prior to the complaint being received which addressed the issue.
8	28/09/2022	IN-26848	Community Concern – Dust Complaint	Complaint regarding dust deposition on personal vehicle parked near the south pens in the FBH. Dust is causing staining to paintwork that requires professional buff and polish from panel beaters to remove.
9	16/01/2023	IN-26975	Community Concern – Dust Complaint	Dust complaint from material handling on the talc stockpile impacting painting operations on the GFC hardstand. Strong southerly wind conditions attributed to dust emissions being generated beyond the lease boundary. Additional dust suppression applied to stockpile and ring road to reduce dust for the duration of load-out activity.
10	17/01/2023	IN-26973	Community Concern – Dust Complaint	Dust complaint from FBH pen holder relating to black dust on vessel moored in South Pens 1.
11	18/01/2023	IN-26975	Community Concern – Dust Complaint	Email received from FBH pen holder relating to white dust event which has impacted several vessels in the south pens. Actions taken as per above CAMMs incident IN-26975
12	6/02/2023	IN-26990 * Not Port Related	Community Concern - Dust Complaint	User of GBL hardstand (FBH northern reclaim) complained that charter vessel was being covered in black dust while stored in the yard for maintenance. Trade Coordinator and Environmental Advisor inspected the vessel on 07/02 and confirmed the vessel had not been cleaned since storing on the hardstand 16/12. Dust was observed of grey/brown colour, and primarily impacting the western side of the vessel. Dust

No.	Incident Date	CAMMS Number	Incident Title	Brief Summary
				determined to be primarily from background sources and not solely attributed to port operations.
13	9/02/2023	IN-26993 * Not Port Related	Community Concern - Dust Complaint	FBH pen holder advised MWPA of concerns around pitting on vessel while stored on GFC hard stand 4 weeks earlier. Vessel is aluminium and had been newly lacquered in September 2022. MWPA inspected vessel. Pitting observed on vessel not attributed to port operations.
14	21/02/2023	IN-27014	Community Concern – Dust Complaint	FBH pen holder complained of white dust impacting vessel on lease 6 hardstand. Imerys advised of complaint, attributed to operations at the talc stockpile.
15	1/03/2023	IN-27018	Community Concern – Dust Complaint	FBH pen holder advised MWPA of concerns around dust impact to vessel moored in south pens. Concern raised around black dust settling on vessel causing pitting as well as talc dust. MWPA noted complaint and advised pen holder of current dust improvement actions including the wind tamer fence currently under construction.
16	8/05/2023	IN-27086 * Not Port Related	Community Concern – Dust Complaint	Dust complaint from resident in Beachlands concerned about black dust accumulating on his shed and impacting his rainwater tank, which he believes is coming from the iron-ore trains south of his property. MWPA explained dust control methods undertaken by Karara for iron-ore trains and provided contact details for Karara's Community Relations Advisor. MWPA notified Karara of the complaint.
17	18/05/2023	IN-27101	Community Concern - Noise Complaint	Complaint received from resident in Point Moore regarding noise from Karara train unloader. Complainant is concerned the train unloader alarm "beeping" noise has increased in volume in the past 12 months and can last for a long period while the train is being unloaded. MWPA notified Karara of the complaint who undertook a noise assessment which confirmed noise levels are in compliance with ISO7731:2003 Auditory Danger Signals. Noise from alarms in the port will be further investigated as part of the Noise Modelling Assessment being undertaken in May 2023.

6 Summary of Environmental Incidents

As required by Condition 4.2.1 of the licence, MWPA is required to provide a summary of any failure or malfunction of any pollution control equipment and any environmental incidents that have occurred during the reporting period, including any action taken.

Five reportable environmental incidents occurred during the reporting period which were considered to have the potential to cause pollution and were reported to DWER via a Section 72 Waste Discharge Notification. These were:

- Stormwater contaminated with iron-ore fines discharged into the harbour on 29th July 2022 resulting in a short period of elevated turbidity and impact to marine water quality in the vicinity of Berth 5. Impact was contained within the commercial harbour and dispersed naturally. (CAMMS incident IN-26749).
- Fertiliser was spilled into the harbour during discharge of a vessel on 15th February 2023. Spill plates were deployed incorrectly, allowing product spilled from the grabs to pass between the vessel and the edge of the berth. The volume of fertiliser spilled to the harbour was considered negligible and environmental impact low. Two prototype redesigned spill plates have been commissioned with the aim to prevent future occurrences. (CAMMS incident IN-27001).
- Two exceedances of air quality target for Nickel as TSP (refer to section 2.3.2.4).
- One exceedance of air quality target for Lead as PM10 (refer to section 2.3.2.6).

10 incidents occurred where environmental monitoring equipment malfunctioned, or samples were not undertaken in accordance with the licence. 7 of these events were reported to DWER via quarterly Air Quality Monitoring reports. 3 events relating to background HiVol samples are outlined in section 2.3.2 of this report.

Incidents considered to be a non-compliance with licence conditions or that had the potential to cause pollution are reported in the attached Annual Audit Compliance Report (AACR) (Attachment 2).

MWPA promotes a culture of immediate and transparent reporting of all environmental incidents that may occur, regardless of severity. Several minor environmental incidents were reported during the period as outlined in Table 12 below. All incidents were recorded in the MWPA incident management system (CAMMS).

Table 12 - Minor Environmental Incidents 2022/2023

Incident Date	CAMMS Number	Incident Description and Action Taken
01/07/22	IN-26753	Iron ore spilt on ramp and through the mineral storage area
04/07/22	IN-26758	Fertiliser spillage on Berth 6 due to power isolation.
05/07/22	IN-26760	Excavator blew hydraulic line while excavating
12/07/22	IN-26771	Excessive dust emissions from Berth 3 and Berth 4
28/07/22	IN-26793	Truck hydraulic oil leak at truck unloader. Spillage contained and cleaned up.
29/09/22	IN-26850	Ore spillage on Marine terrace road. Cleanup was organized.
07/10/22	IN-26858	Spillage of mineral in spoon drain on the East side of the KML shed paused loading on MV Western London
11/10/22	IN-26866	Truck leaving truck unloader left a trail of iron ore from unloader along marine terrace onto Portway and down John Willcock link.
28/10/22	IN-26887	About 2L oily bilge water spilled on berth 6. Spillage contained and cleaned up.
17/11/22	IN-26909	Iron ore spillage near truck unloader. Sweeper cleaned spill.
08/01/23	IN-26965	Iron Ore spillage along Gillam Rd to Marine Terrace. Was cleaned up with sweeper.
27/02/23	IN-27010	Waste oil receptacle was overfilled. Spillage was contained and cleaned up.
18/03/23	IN-27038	Truck approaching truck unloader left a trail of iron ore from unloader along marine terrace and down John Willcock link. Driver was notified
01/05/23	IN-27080	Mud slurry runoff from drilling uncontained impacted vegetation. Bund was created to contain drill material.
13/05/23	IN-27093	Fuel spill from truck Berth 6 operations - Spillage contained and cleaned up.
19/05/23	IN-27108	Fuel seepage from hose was noticed during discharge. No fuel was spilled.
24/05/23	IN-27103	Oil spill from bobcat Berth 6 operations - Spillage contained and cleaned up.
04/06/23	IN-27119	Diesel Spill in Fishing Boat Harbour – Small quantity that evaporated quickly

7 References

ANZG (2018). Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia. Available at www.waterquality.gov.au/anz-guidelines.

O2 Marine (2023). Geraldton Port Annual Sediment Compliance Survey – 2023. Attachment 1.