



# Environmental Monitoring Summary Report

## *Port Kembla Gas Terminal*

Infrastructure Approval      **SSI-9471**  
EPL Licence Number:      **21529**

Reporting period:              **1 February 2023 – 28 February 2023**

Date published:                **6 April 2023**



## 1 Project background

AIE is responsible for the development of a liquefied natural gas (LNG) import terminal at Port Kembla, south of Wollongong, NSW (the Project). The Project will be the first of its kind in NSW and will provide a simple and flexible solution to the state’s gas supply challenges.

The Project has been declared Critical State Significant Infrastructure (CSSI) in accordance with Section 5.13 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) (NSW) and Schedule 5 of the *State Environmental Planning Policy State and Regional Development* (SRD SEPP). The Project received Infrastructure Approval from the Minister for Planning and Public Spaces on 29 of April 2019.

The construction of the Project is primarily associated with the establishment of a new berth facility at Port Kembla to enable a Liquefied Natural Gas (LNG) Carrier to berth alongside the Floating Storage and Re-gasification Unit (FSRU) and new infrastructure to connect the terminal to the existing gas network. The location of the Project is shown on the Environmental Monitoring Location Plan provided as Appendix A.

An Environment Protection Licence (EPL) (EPL No. 21529) was issued for the Project by the NSW Environment Protection Authority (EPA) on 2 June 2021. The details of the EPL are provided below in Table 1-1.

*Table 1-1 EPL Details*

|                    |  |
|--------------------|--|
| EPL No.            | 21529  |
| Anniversary Date:  | 2 June   |
| Licensee:          | Australian Industrial Energy Pty Ltd           |
|                    | PO Box 3155 Broadway                           |
|                    | Nedlands WA 6009                               |
| Premises:          | Port Kembla Gas Terminal, Port Kembla NSW 2505 |
| Scheduled Activity | Contaminated soil treatment                    |
|                    | Crushing, grinding or separating               |
|                    | Petroleum products storage                     |

## 2 Report purpose

This Monthly Environmental Monitoring Report has been prepared to provide an overview of project activities undertaken during the reporting period and those forecast for the next reporting period (refer to Section 3), and to satisfy the requirements associated with the reporting and publishing of monitoring data and results required under the relevant conditions of approval and environmental management plans as detailed further in Table 2-1.

Table 2-1 Environmental monitoring reporting requirements

| Document   | Clause or section  | Requirement  | Addressed:   |
|--|--------------------|--|--|
| DPIE<br>SSI-9471                                       | Sch. 4<br>Cond. 8  | Regular Reporting – The Proponent must provide regular reporting on the environmental performance of the development on its website in accordance with the reporting requirements in any strategies, plans or programs approved under the conditions of this approval.   | This report which will be made available on the Project Website.   |
|  | Sch. 4<br>Cond. 12 | Access to information – From the commencement of development under this approval, the Proponent shall:<br>(a) Make copies of the following information publicly available on its website:  |  |
|  |                    | - a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this approval, or any approved plans and programs  | Section 4  |
|  |                    | - a summary of complaints, which is to be updated monthly  | Section 5  |
| AIE<br>Air Quality Management Plan (Stage 2A and 2B)   | Section 11.4       | A monthly environmental monitoring report will be developed for each calendar month which will include details of the monitoring results and frequencies and inclusion of any exceedance of EPL No. 21529 air monitoring limits / criteria.<br>A copy of the monthly environmental monitoring report will be made available on the AIE Project website.  | Air quality monitoring results and frequencies and inclusion of any exceedance provided in Section 4.1   |
| AIE<br>Water Quality Monitoring Plan (Stage 2A and 2B) | Section 9.4        | A monthly environmental monitoring report will be developed for each calendar month which will include details of the monitoring results and frequencies and inclusion of any exceedance of EPL (No. 21529) water quality monitoring limits / criteria.<br>A copy of the monthly environmental monitoring report will be made available on the AIE Project website.  | Water quality monitoring results and frequencies and inclusion of any exceedance provided in Section 4.2 |
| EPL 21529  | Condition M6.2     | The licensee must monitor and record temperature, humidity, wind direction, wind velocity and rainfall at either the project weather station, or through analysis of equivalent weather information obtained from the Australian Bureau of Meteorology.<br>Whilst there are no specific requirements to provide weather data in the monthly report, AIE has included the data for transparency and to assist with context for any monitoring results where required. | Section 4.3  |

## 3 Project activities

### 3.1 Project status

The project has progressed to Stage 2A and Stage 2B as follows:

Stage 2A: Marine Berth Construction – Land Based. Associated works include:

- Quay wall construction.
- Installation of communications conduit, potable water line, and 11kV power cable and Pad-mount Substation within the Marine Berth Construction and Dredging (MBD) Site Compound.
- Construction of the Onshore Receiving Facilities (ORF), which comprises three areas: Wharf Topside Area; Utility Area; and Common Area.
- Pipeline construction and associated ancillary infrastructure within MBD Site Compound delivered as part of ORF scope.

Stage 2B: Marine Berth Construction – Marine Based. Associated works include:

- Continuation of Stage 2A works
- Excavation and dredging of the MBD Site Compound in the Inner Harbour and the Emplacement Cell in the Outer Harbour.
- Construction of the Emplacement Cell in the Outer Harbour.
- Marine based construction activities including installation of navigational aids and revetments at the MBD Site Compound.

Stage 3: Gas pipeline Construction. Associated works include:

- Construction of gas pipeline section within Berth 101.

### 3.2 Project activities for the reporting month

- Berth 101 geotechnical investigations.
- Continued dredging of Berth 101 and relocation of dredge spoil to the OH.
- Construction of the Outer Harbour Emplacement Cell.
- Ongoing construction of the Outer Harbour Temporary Loadout Facility (TLF)
- Importation, stockpiling and management of rock-fill material for later use during construction of the emplacement cell bund.

### 3.3 Project activities for the upcoming month

- Ongoing Berth 101 geotechnical investigations.
- Completion of the Outer Harbour TLF

## 4 Environmental monitoring data

The following sections present a summary of the air quality, water quality and weather monitoring data for the reporting month.

A copy of this report will be made available on the Project website at the following web-address:

<https://www.squadronenergy.com/our-projects/port-kembla-energy-terminal>

### 4.1 Air quality

#### 4.1.1 Air Quality Monitoring Locations and Frequency

Air quality monitoring equipment is installed to the north and south of the MBD site compound (Berth 101), and to the east, to the west, and within the central portion of the Outer Harbour stockpile area.

A summary of the air quality monitoring locations is provided below in Table 4-1 and a monitoring location plan is provided in **Appendix A**.

Table 4-1 Air quality monitoring locations

| EPL Ref. | Monitoring location  | Monitoring type                                  | Monitoring parameter                                       | Monitoring frequency                              |
|----------|--|--|--|---|
| 8        | Northern boundary of the premises, adjacent the southern boundary of Port Kembla Coal Terminal | Dust Deposition Gauge                            | Particulates - Deposited Matter (gm/m <sup>2</sup> /month) | Monthly   |
| 10       | Southern boundary of Berth 101   |  |  |   |
| 12       | Southern side of emplacement area, Outer Harbour   | Ambient Air Monitoring - High Volume Air Sampler | Total suspended particles (TSP) (ug/m <sup>3</sup> )       | Special Frequency 1 (24-hour period every 6 days) |
| 14       | Eastern side of emplacement area, Outer Harbour  |  |  |   |
| 22       | Northern side of emplacement area, Outer Harbour   |  |  |   |
| 9        | Northern boundary of the premises, adjacent the southern boundary of Port Kembla Coal Terminal | Real time dust monitoring                        | PM10 (ug/m <sup>3</sup> )                                  | Continuous  |
| 11       | Southern boundary of Berth 101   |  |  |   |
| 13       | Southern side of emplacement area, Outer Harbour   |  |  |   |
| 15       | Eastern side of emplacement area, Outer Harbour  |  |  |   |
| 23       | Northern side of emplacement area, Outer Harbour   |  |  |   |

#### 4.1.2 Air Quality Monitoring Results

The air quality monitoring results for the reporting month are presented below in Table 4-2.

Table 4-2 Air quality monitoring results

| Monitoring Location<br>(EPL Reference) |                         | Monitoring parameter   |  |                   |                                  |   |                                  |        |                        |
|--|-------------------------|--|--|-------------------|----------------------------------|---|----------------------------------|--------|------------------------|
|  |                         | Particulates Deposited Matter<br>(Depositional dust gauge)** | Total Suspended Particulate<br>(High Volume Air Sampler) |                   |                                  | PM10<br>(Real-time Dust Track or equiv.)      |                                  |        | Events above criteria* |
|  |                         |  | Average  | Min.              | Max.                             | Average                                       | Min.                             | Max.   |                        |
| Unit                                   | g/m <sup>2</sup> /month | mg/m <sup>3</sup>  | mg/m <sup>3</sup>  | mg/m <sup>3</sup> | ug/m <sup>3</sup> /24 hr average | ug/m <sup>3</sup> /24 hr average              | ug/m <sup>3</sup> /24 hr average | No.    |                        |
| Criteria                               | NA                      | NA   | NA   | NA                | NA                               | NA  | 200                              | NA     |                        |
| Berth 101 North                        | EPL 8                   | 3.8  | 0.15   | 0.10              | 0.20                             | No PM10 monitoring required at this EPL Point |                                  |        | NA                     |
|  | EPL 9                   | No Dust Deposition Gauge or HiVol required at this EPL Point |  |                   |                                  | 52.11   | 24.83                            | 94.50  | 0                      |
| Berth 101 South                        | EPL 10                  | 2.1  | 0.10   | 0.09              | 0.10                             | No PM10 monitoring required at this EPL Point |                                  |        | NA                     |
|  | EPL 11                  | No Dust Deposition Gauge or HiVol required at this EPL Point |  |                   |                                  | 35.90   | 16.13                            | 114.08 | 0                      |
| Outer Harbour South                    | EPL 12                  | 1.1  | 0.05   | 0.04              | 0.06                             | No PM10 monitoring required at this EPL Point |                                  |        | NA                     |
|  | EPL 13                  | No Dust Deposition Gauge or HiVol required at this EPL Point |  |                   |                                  | 28.13   | 13.55                            | 48.96  | 0                      |
| Outer Harbour East                     | EPL 14                  | 0.6  | 0.07   | 0.06              | 0.10                             | No PM10 monitoring required at this EPL Point |                                  |        | NA                     |
|  | EPL 15                  | No Dust Deposition Gauge or HiVol required at this EPL Point |  |                   |                                  | 22.86   | 13.65                            | 40.01  | 0                      |
| Outer Harbour North                    | EPL 22                  | 1.2  | 0.06   | 0.04              | 0.07                             | No PM10 monitoring required at this EPL Point |                                  |        | NA                     |
|  | EPL 23                  | No Dust Deposition Gauge or HiVol required at this EPL Point |  |                   |                                  | 33.82   | 13.04                            | 83.62  | 0                      |

\*Includes individual number of times results recorded above Stage 2A and Stage 2B performance criteria (200 ug/m<sup>3</sup>/24 hour average). Refer to **Appendix B** for event above criteria reports.

\*\*Assessed as Total Insoluble.

## 4.2 Water quality

### 4.2.1 Water Quality Monitoring Locations and Frequency

Water quality monitoring is undertaken at five (5) locations within the Port Kembla Harbour. Each water quality monitoring location is securely anchored/moored in its location. Details of each of the water quality monitoring locations and corresponding EPL monitoring point reference is provided below in Table 4-3.

Table 4-3 Port Kembla Harbour water quality monitoring locations

| EPL Ref. | Monitoring location   | Type of monitoring                  | Parameters  |  |
|----------|---|-------------------------------------|---|--|
|          |   |                                     | Continuous monitoring at 15 min intervals                                     | Weekly grab sample   |
| 1        | <b>WQM1</b> - North of Berth 101                                  | Primary- impact works area receiver | - Turbidity<br>- Temperature<br>- pH<br>- Salinity (EC)<br>- Dissolved oxygen | - Aluminium<br>- Arsenic<br>- Cadmium<br>- Chromium (total)<br>- Cobalt<br>- Copper<br>- Lead<br>- Mercury<br>- Nickel<br>- Total PAHs<br>- TSS<br>- Tributyltin<br>- Zinc |
| 16       | <b>WQM2</b> - North of the emplacement cell, Outer Harbour.       | Primary- impact works area receiver |   |  |
| 17       | <b>WQM3</b> - South West of Berth 101                             | Primary- impact works area receiver |   |  |
| 18       | <b>WQM4</b> - Near the Pacific Ocean entrance to Outer Harbour    | Background water quality            |   |  |
| 19       | <b>WQM5</b> - Near entrance to Allans Creek, near BlueScope Steel | Background water quality            |   |  |

It is noted that the EPL 21529 also includes a mobile water quality monitoring point (EPL 24) for the undertaking of ambient water quality monitoring for turbidity within 5m of the outermost silt curtain near Berth 101 during dredging operations. As dredging works at Berth 101 continued throughout this reporting period, water quality monitoring was in place at EPL 24.

In addition to the monitoring requirements listed above for the harbour, monitoring is also required for any discharge event from the on-site sedimentation basin located at the southern end of Berth 101. Details of the monitoring requirements associated with the sediment basin discharge point are included below in Table 4-4.

Table 4-4 Sediment basin discharge monitoring

| EPL Ref. | Monitoring location   | Type of monitoring            | Parameters  |   |
|----------|---|-------------------------------|---|---|
|          |   |                               | Prior to discharge  | Daily grab sample during discharge  |
| 20       | Sediment basin discharge point at the southern end of Berth 101 | Wet weather discharge quality | - Oil and grease (visual)<br>- Total suspended solids (TSS) | - Aluminium<br>- Arsenic<br>- Cadmium<br>- Chromium<br>- Cobalt<br>- Copper<br>- Lead<br>- Mercury<br>- Nickel<br>- Oil and grease (visual)<br>- pH<br>- Total PAHs<br>- Tributyltin<br>- TSS<br>- Zinc |

#### 4.2.2 Water Quality Monitoring Results

A summary of the results for the continuous water quality monitoring in Port Kembla Harbour is presented below in Table 4-5. Further details for exceedances as indicated below (if applicable) are provided in **Appendix B**.

Table 4-5 Port Kembla Harbour water quality – Continuous monitoring results

|  | Statistic                          | Results - based on individual 15-minute median |                                |           |   |                         |
|--|------------------------------------|--|--------------------------------|-----------|---|-------------------------|
|  |                                    | Turbidity (NTU)                                | Temperature (Deg. C)           | pH        | Electrical conductivity (uS/cm <sup>2</sup> ) | Dissolved Oxygen (%sat) |
| Criteria   |                                    | 50 + BG <sup>1</sup>                           | N/A                            | 6.5 – 8.5 | N/A   | 70 – 110                |
| WQM1<br>EPL 1                                    | Average                            | 3.7  | 24.0                           | 8.2       | 51036.3                                       | 96.1                    |
|  | Minimum                            | 0.0  | 21.5                           | 7.7       | 17021.8                                       | 77.8                    |
|  | Maximum                            | 77.3   | 27.1                           | 8.4       | 53225.6                                       | 153.7                   |
|  | Events above criteria <sup>2</sup> | 1  | -                              | 0         | -   | 12                      |
| WQM2<br>EPL 16                                   | Average                            | 2.9  | 23.7                           | 8.2       | 52150.6                                       | 104.8                   |
|  | Minimum                            | 1.0  | 20.8                           | 7.9       | 24193.5                                       | 83.1                    |
|  | Maximum                            | 336.9  | 26.2                           | 8.4       | 53585.3                                       | 143.4                   |
|  | Events above criteria <sup>2</sup> | 2  | -                              | 0         | -   | 17                      |
| WQM3<br>EPL 17                                   | Average                            | 3.0  | 24.1                           | 8.3       | 51442.3                                       | 101.8                   |
|  | Minimum                            | 1.0  | 20.9                           | 7.7       | 12830.2                                       | 81.1                    |
|  | Maximum                            | 69.2   | 27.3                           | 8.4       | 53474.3                                       | 152.0                   |
|  | Events above criteria <sup>2</sup> | 1  | -                              | 0         | -   | 17                      |
| WQM4<br>EPL 18<br>(Background)                   | Average                            | 2.6  | 23.6                           | 8.2       | 52224.7                                       | 102.0                   |
|  | Minimum                            | 1.0  | 21.4                           | 7.9       | 30486.7                                       | 87.1                    |
|  | Maximum                            | 23.2   | 25.6                           | 8.3       | 53533.6                                       | 132.9                   |
| WQM5<br>EPL 19<br>(Background)                   | Average                            | 9.7  | 26.4                           | 8.3       | 49778.1                                       | 100.2                   |
|  | Minimum                            | 0.0  | 20.1                           | 7.6       | 1548.6  | 84.3                    |
|  | Maximum                            | 731.6  | 31.3                           | 8.5       | 53572.7                                       | 147.3                   |
| Mobile WQM /<br>EPL 24<br>(Ambient) <sup>3</sup> | Average                            | 1.95   | Not required at this EPL point |           |   |                         |
|  | Minimum                            | 0.96   |                                |           |   |                         |
|  | Maximum                            | 4.75   |                                |           |   |                         |

<sup>1</sup>Total suspended solids (TSS) is monitored in real time using turbidity in NTU and the NTU-TSS correlation as recommended in the current EPL or from an in-field study approved by the EPA, whichever is more current at the time of measurement. BG = Background, recorded at WQM4 and/or WQM5.

<sup>2</sup>Calculated as number of days where results exceeded performance criteria. Refer to Appendix B for exceedance reports.

<sup>3</sup>Complete results for this point are included as **Appendix C**.





4.2.3 Water Quality Monitoring Results – Port Kembla Harbour Grab Samples

A summary of the results for the Port Kembla Harbour weekly grab samples is presented below in Table 4-6. Further details for exceedances as indicated below (if applicable) are provided in **Appendix B**.

Table 4-6 Port Kembla Harbour water quality – Weekly grab sample results summary

| Monitoring Location | Statistic <sup>2</sup>             | Aluminium | Ammonia | Arsenic | Cadmium | Chromium (total) | Cobalt | Copper | Iron | Lead | Mercury | Nickel | Reactive Phosphorus | Total PAHs | Total Suspended Solids (TSS) | Tributyltin | Zinc |
|---------------------|------------------------------------|-----------|---------|---------|---------|------------------|--------|--------|------|------|---------|--------|---------------------|------------|------------------------------|-------------|------|
| Unit                |                                    | ug/L      | mg/L    | ug/L    | ug/L    | ug/L             | ug/L   | ug/L   | ug/L | ug/L | Ug/L    | ug/L   | mg/L                | ug/L       | mg/L                         | ngSn/L      | ug/L |
| Criteria            |                                    | 200       | -       | 50      | 5.5     | 4.4              | 1      | 8      | -    | 12   | 0.4     | 70     | -                   | 50         | 50                           | 6           | 21   |
| WQM1<br>EPL 1       | Average                            | <5        | 0.16    | 1.58    | <1      | <0.5             | <1     | 2.50   | <5   | <0.2 | <0.1    | 0.85   | <0.01               | <0.05      | 8.00                         | <2          | <5   |
|                     | Minimum                            | <5        | 0.16    | 1.50    | <1      | <0.5             | <1     | 1.00   | <5   | <0.2 | <0.1    | 0.60   | <0.01               | <0.05      | 8.00                         | <2          | <5   |
|                     | Maximum                            | <5        | 0.16    | 1.70    | <1      | <0.5             | <1     | 4.00   | <5   | <0.2 | <0.1    | 1.10   | <0.01               | <0.05      | 8.00                         | <2          | <5   |
|                     | Events above criteria <sup>1</sup> | 0         | -       | 0       | 0       | 0                | 0      | 0      | -    | 0    | 0       | 0      | -                   | 0          | 0                            | 0           | 0    |
| WQM2<br>EPL 16      | Average                            | <5        | 0.14    | 1.68    | <1      | <0.5             | <1     | 1.00   | <5   | <0.2 | <0.1    | <0.5   | <0.01               | <0.05      | <5                           | <2          | <5   |
|                     | Minimum                            | <5        | 0.14    | 1.60    | <1      | <0.5             | <1     | 1.00   | <5   | <0.2 | <0.1    | <0.5   | <0.01               | <0.05      | <5                           | <2          | <5   |
|                     | Maximum                            | <5        | 0.14    | 1.80    | <1      | <0.5             | <1     | 1.00   | <5   | <0.2 | <0.1    | <0.5   | <0.01               | <0.05      | <5                           | <2          | <5   |
|                     | Events above criteria <sup>1</sup> | 0         | -       | 0       | 0       | 0                | 0      | 0      | -    | 0    | 0       | 0      | -                   | 0          | 0                            | 0           | 0    |
| WQM3<br>EPL 17      | Average                            | <5        | 0.14    | 1.63    | <1      | <0.5             | <1     | <1     | <5   | <0.2 | <0.1    | 0.65   | <0.01               | <0.05      | <5                           | <2          | <5   |
|                     | Minimum                            | <5        | 0.14    | 1.60    | <1      | <0.5             | <1     | <1     | <5   | <0.2 | <0.1    | 0.60   | <0.01               | <0.05      | <5                           | <2          | <5   |
|                     | Maximum                            | <5        | 0.14    | 1.70    | <1      | <0.5             | <1     | <1     | <5   | <0.2 | <0.1    | 0.70   | <0.01               | <0.05      | <5                           | <2          | <5   |
|                     | Events above criteria <sup>1</sup> | 0         | -       | 0       | 0       | 0                | 0      | 0      | -    | 0    | 0       | 0      | -                   | 0          | 0                            | 0           | 0    |
| WQM4<br>EPL 18      | Average                            | <5        | 0.14    | 1.58    | <1      | <0.5             | <1     | <1     | <5   | <0.2 | <0.1    | 0.60   | <0.01               | <0.05      | <5                           | <2          | <5   |
|                     | Minimum                            | <5        | 0.14    | 1.50    | <1      | <0.5             | <1     | <1     | <5   | <0.2 | <0.1    | 0.60   | <0.01               | <0.05      | <5                           | <2          | <5   |
|                     | Maximum                            | <5        | 0.14    | 1.60    | <1      | <0.5             | <1     | <1     | <5   | <0.2 | <0.1    | 0.60   | <0.01               | <0.05      | <5                           | <2          | <5   |
| WQM5<br>EPL 19      | Average                            | <5        | 0.21    | 1.73    | <1      | <0.5             | <1     | <1     | <5   | <0.2 | <0.1    | 0.93   | <0.01               | <0.05      | <5                           | <2          | <5   |
|                     | Minimum                            | <5        | 0.21    | 1.60    | <1      | <0.5             | <1     | <1     | <5   | <0.2 | <0.1    | 0.70   | <0.01               | <0.05      | <5                           | <2          | <5   |
|                     | Maximum                            | <5        | 0.21    | 1.80    | <1      | <0.5             | <1     | <1     | <5   | <0.2 | <0.1    | 1.10   | <0.01               | <0.05      | <5                           | <2          | <5   |

<sup>1</sup>Includes individual number of times results exceeded criteria. Refer to **Appendix B** for exceedance reports.

<sup>2</sup>Only results above the laboratory Limit of Reporting (LOR) have been used to calculate these data functions. Where an analyte has not been detected above the LOR throughout the monitoring period, the LOR has been listed.



4.2.4 Water Quality Monitoring Results – Sediment basin discharge

During the reporting month, there were eight (8) authorised discharge events, and zero (0) discharge events as a result of excessive rainfall exceeding the design criteria of the basin (>43.5 mm in any 5-day period). Refer to Section 4.3 for site weather monitoring details. The date of the events and a summary of the water quality results for the authorised discharge events from the sediment basin is included below in Table 4-7.

Table 4-7 Sediment basin discharge water quality – Pre-discharge and daily grab sample results

| Date of discharge/<br>sampling | Aluminium | Arsenic | Cadmium | Chromium | Cobalt | Copper | Lead | Mercury | Nickel | Zinc | Tributyltin | TSS  | pH   | Oil & Grease | Total PAH | Overflow Discharge? | Rainfall (mm) Roll. 5-Day Total |
|--------------------------------|-----------|---------|---------|----------|--------|--------|------|---------|--------|------|-------------|------|------|--------------|-----------|---------------------|---------------------------------|
|                                | µg/L      | µg/L    | µg/L    | µg/L     | µg/L   | µg/L   | µg/L | µg/L    | µg/L   | µg/L | µg/L        | mg/L | -    | -            | µg/L      | -                   | mm                              |
| <b>Criteria</b>                | NA        | NA      | NA      | NA       | NA     | NA     | NA   | NA      | NA     | NA   | NA          | 50   | NA   | Visible      | NA        | NA                  | NA                              |
| 03/02/2023                     | 346       | 1.1     | <0.05   | 0.3      | <0.1   | 1.5    | <0.1 | <0.1    | <0.5   | 2    | <2          | 16   | 8.23 | <5           | <0.05     | N                   | N/A                             |
| 06/02/2023                     | 414       | 1.0     | <0.05   | 0.3      | <0.1   | 1.2    | <0.1 | <0.1    | <0.5   | <1   | <2          | 12   | 7.50 | <5           | <0.05     | N                   | N/A                             |
| 07/02/2023                     | 309       | 1.3     | <0.05   | 0.3      | <0.1   | 1.3    | <0.1 | <0.1    | <0.5   | 1    | <2          | 9    | 7.88 | <5           | <0.05     | N                   | N/A                             |
| 08/02/2023                     | 291       | 1.4     | <0.05   | 0.3      | <0.1   | 1.4    | <0.1 | <0.1    | <0.5   | <1   | <2          | 10   | 7.06 | <5           | <0.05     | N                   | N/A                             |
| 13/02/2023                     | 214       | 0.9     | <0.05   | 0.3      | <0.1   | 1.0    | <0.1 | <0.1    | <0.5   | <1   | <2          | 24   | 7.28 | <5           | <0.05     | N                   | N/A                             |
| 14/02/2023                     | 203       | 0.9     | <0.05   | 0.3      | <0.1   | 1.0    | <0.1 | <0.1    | <0.5   | <1   | <2          | 20   | 7.48 | <5           | <0.05     | N                   | N/A                             |
| 15/02/2023                     | 181       | 0.7     | <0.05   | 0.3      | <0.1   | 0.7    | <0.1 | <0.1    | <0.5   | <1   | <2          | 15   | 7.58 | <5           | <0.05     | N                   | N/A                             |
| 16/02/2023                     | 118       | 0.6     | <0.05   | 0.3      | <0.1   | 0.6    | <0.1 | <0.1    | <0.5   | <1   | <2          | 18   | 7.41 | <5           | <0.05     | N                   | N/A                             |



### 4.3 Weather station results

Under the EPL (Condition M6.2), AIE is required to monitor and record temperature, humidity, wind direction, wind velocity and rainfall at either a project weather station, or through analysis of equivalent weather information obtained from the Australian Bureau of Meteorology.

AIE established and maintains a weather station for the project site located at the southern point of Berth 101 (EPL monitoring point 21) as shown in **Appendix A**. The data obtained from the onsite weather station for the reporting period is provided below in Table 4-8.

*Table 4-8 Site weather station monitoring results summary*

| Parameter             | Unit of measure                   | Monthly statistic                | Result<br>EPL 21 |
|-----------------------|-----------------------------------|----------------------------------|------------------|
| Wind velocity         | m/s (15min average)               | Average                          | 4.60             |
|                       |                                   | Minimum                          | 0.27             |
|                       |                                   | Maximum                          | 11.40            |
| Wind direction at 10m | Degrees (1 hour averaging period) | See Wind Rose chart (Figure 4-1) |                  |
| Rainfall rate         | mm/hr (1 hour averaging period)   | Average                          | 0.01             |
|                       |                                   | Minimum                          | 0.00             |
|                       |                                   | Maximum                          | 2.54             |
| Rainfall (Total)      | mm/day                            | Average                          | 2.81             |
|                       |                                   | Minimum                          | 0.00             |
|                       |                                   | Maximum                          | 37.20            |
| Temperature           | Degrees Celsius                   | Average                          | 22.64            |
|                       |                                   | Minimum                          | 16.80            |
|                       |                                   | Maximum                          | 27.80            |
| Humidity              | %                                 | Average                          | 74.69            |
|                       |                                   | Minimum                          | 28.00            |
|                       |                                   | Maximum                          | 100.00           |

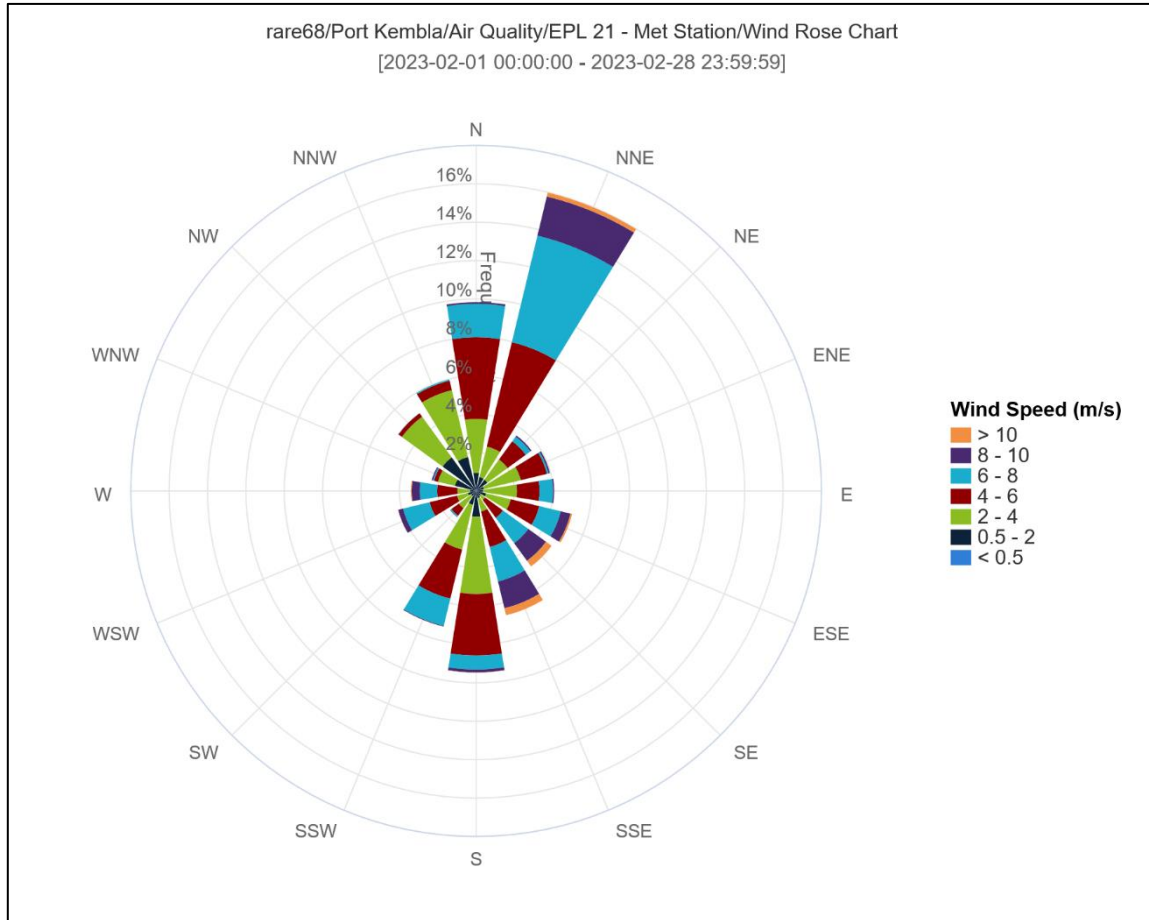


Figure 4-1 Wind Rose chart for the reporting period.



## 5 Environmental complaints

A summary of environmental complaints received during the reporting month and follow-up, close-out and or corrective actions are presented below in Table 5-1 where applicable.

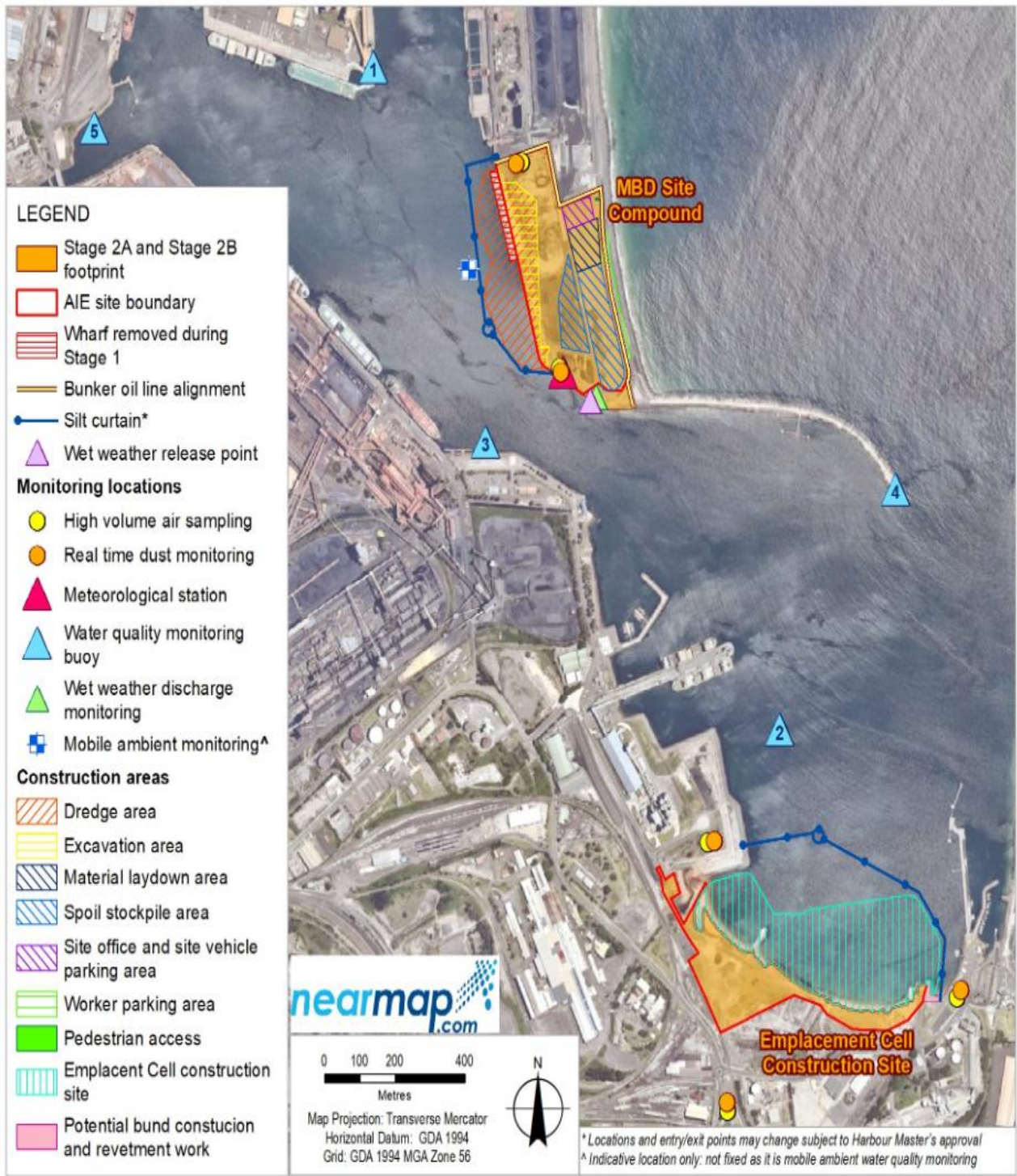
*Table 5-1 Environmental complaints summary*

| Date | Complaint No. | Nature of the complaint                             | Follow-up close-out and or corrective action |
|------|---------------|---|--|
| NA   | NA            | Nil complaints received during the reporting period | NA   |



# Appendices

# Appendix A - Monitoring Location Plan



# Appendix B – Summary of Events Above Criteria

Each exceedance triggers an investigation including the nature of project activities being undertaken, evaluation of wind direction, comparison of upwind and downwind monitors at the time of the event. Dust prevention controls are continually being assessed to ensure their adequacy.

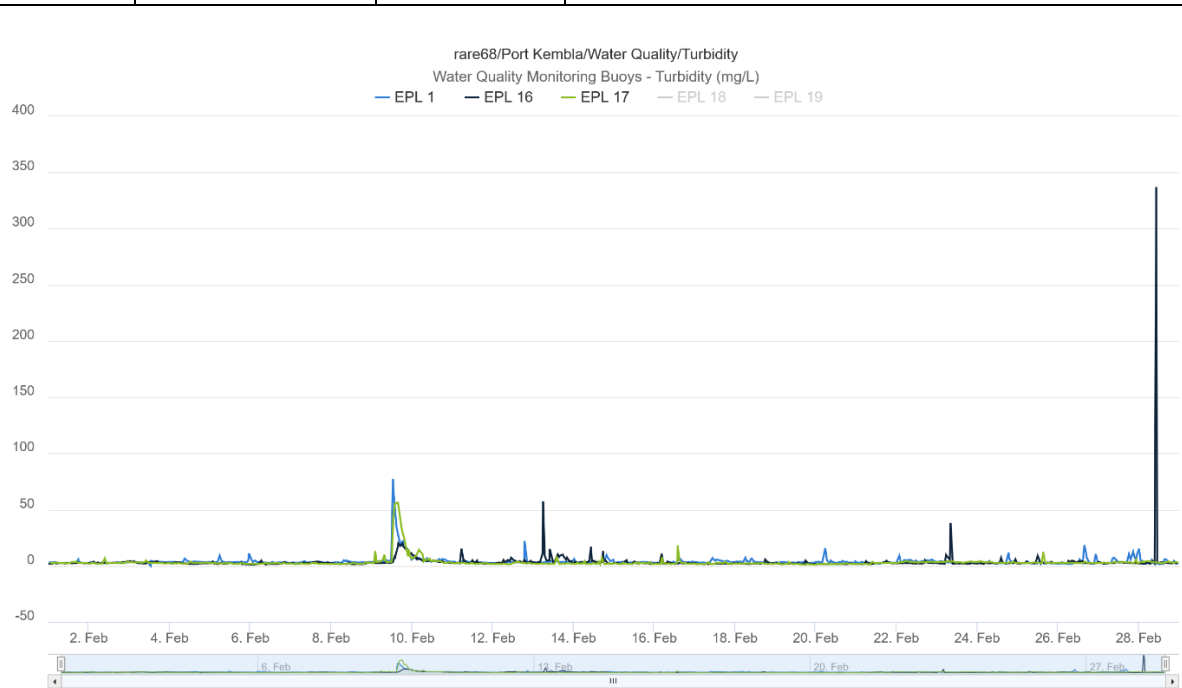
*Table B1 - Air Monitoring Events Above Criteria*

| Date | Location | Exceedance value (ug/m <sup>3</sup> /24 hours) | Action Taken & Investigation Outcomes |
|------|----------|--|---------------------------------------|
| -    | -        | -  | No exceedances in February 2023       |



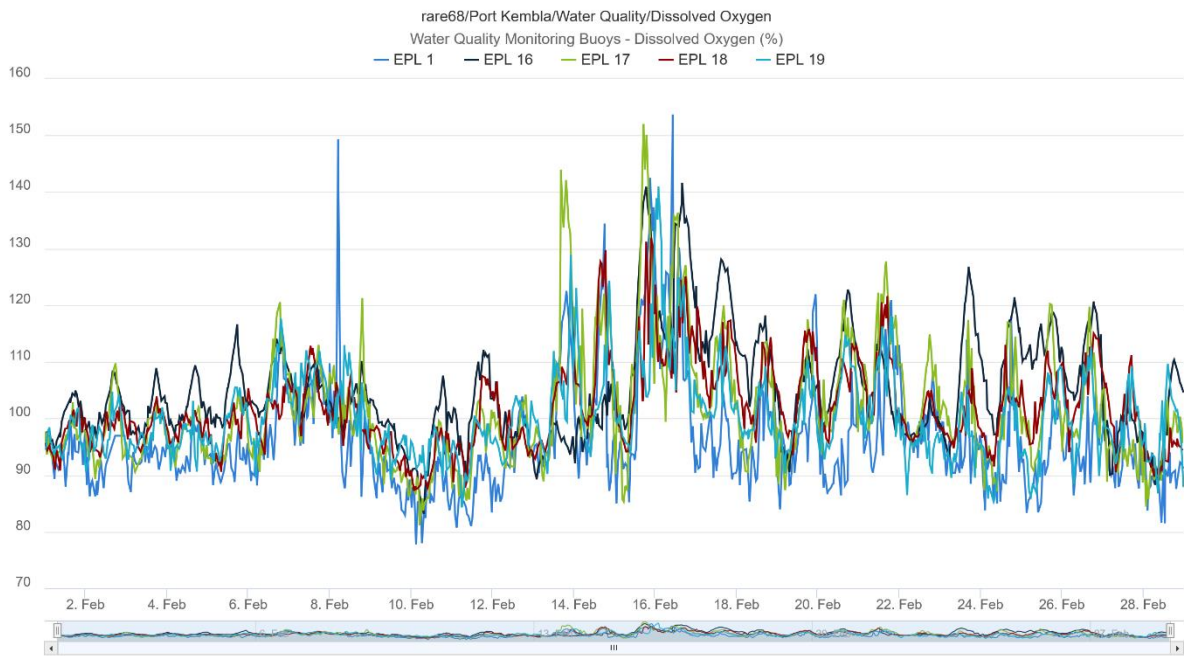
Table B2 - Water Monitoring Events Above Criteria: Harbour water quality – Continuous monitoring results

| Date  | Max. Background Buoy Value (Turbidity NTU)   | Max. Receiver Buoy Value (Turbidity (NTU))                        | Action Taken & Investigation Outcomes  |
|---|--|---|--|
|   | Performance Criteria                         | 50  |  |
| February 1 <sup>st</sup> to 28 <sup>th</sup> 2023 | WQM4 / EPL 18: 23.2<br>WQM5 / EPL 19: 3327.7 | WQM1 / EPL 1: 77.3<br>WQM2 / EPL 16: 336.9<br>WQM3 / EPL 17: 69.2 | The majority of exceedances were due to a rainfall event on the 9 <sup>th</sup> and 10 <sup>th</sup> of February 2023 where 37.2 mm of rain fell in a short amount of time.<br><br>The exceedance at EPL 16 on the 28 <sup>th</sup> of February 2023, where the turbidity level sharply increased followed by a sharp fall back to the previous level, is believed to be a result of biofouling on the sensors of the monitoring equipment. The equipment is cleaned weekly however, marine flora and fauna colonise on the monitoring equipment and can occasionally cause erratic readings, especially given recently warm water temperatures. The short-lived nature of the exceedances supports this assessment. |



The above chart shows turbidity (NTU) observations at impact buoys EPL1, EPL16 and EPL17 for the reporting period. The Exceedance on the 13<sup>th</sup> Feb 2023 at monitoring location EPL 16 was likely due to shipping actions within the harbour as there were no dredging operations or other construction works at the PKGT at the time of exceedances. The large spike on the 28<sup>th</sup> of Feb 2023 was likely due to biofouling.

| Date  | Max. Background Buoy Value (DO%)             | Max. Receiver Buoy Value (DO%)                                      | Action Taken & Investigation Outcomes  |
|---|--|---|--|
|   | Performance Criteria                         | 70 – 110  |  |
| February 1 <sup>st</sup> to 28 <sup>th</sup> 2023 | WQM4 / EPL 18: 132.9<br>WQM5 / EPL 19: 147.3 | WQM1 / EPL 1: 153.7<br>WQM2 / EPL 16: 143.4<br>WQM3 / EPL 17: 152.0 | Dissolved Oxygen (DO) is a measure of the amount of oxygen available to living aquatic organisms. The project has adopted performance criteria as described by the <i>National Acid Sulfate Soils Guidance (NAASG)</i> for the monitoring of DO during dredging activities. Dredging of acid sulfate soils can result in the reduction of dissolved oxygen in a waterbody due to pyrite (a key component of acid sulfate soils) combining with oxygen to create sulfate compounds such as sulfuric acid. The <i>NAASG</i> suggests a performance criterion for DO of greater than 50% saturation for this reason. These exceedances of the performance criteria were an excess of DO saturation, not a reduction. The high DO levels observed in the harbour are related to several external factors to the project including atmospheric pressure and water temperature, tidal cycles and wind. |



The above chart shows DO observations at impact buoys EPL 1, EPL16 and EPL 17, as well as at background buoys; EPL 18 and EPL 19 for the reporting period.

# Appendix C – EPL 24 Data

This is a mobile monitoring point located five metres outside the silt curtain around Berth 101. Point 24 is required to be sampled daily for Total Suspended Solids (TSS) during dredging activities. TSS is monitored in real time using turbidity in NTU and the NTU-TSS correlation as recommended in the current EPL or from an in-field study approved by the EPA, whichever is more current at the time of measurement.

## *EPL 24 Daily Average Monitoring Results*

| Date       | Turbidity (NTU) |
|------------|-----------------|
| 1/02/2023  | 2.21            |
| 2/02/2023  | 2.27            |
| 3/02/2023  | 1.13            |
| 4/02/2023  | NA              |
| 5/02/2023  | NA              |
| 6/02/2023  | NA              |
| 7/02/2023  | NA              |
| 8/02/2023  | NA              |
| 9/02/2023  | NA              |
| 10/02/2023 | NA              |
| 11/02/2023 | NA              |
| 12/02/2023 | NA              |
| 13/02/2023 | NA              |
| 14/02/2023 | NA              |
| 15/02/2023 | NA              |
| 16/02/2023 | NA              |
| 17/02/2023 | NA              |
| 18/02/2023 | NA              |
| 19/02/2023 | NA              |
| 20/02/2023 | NA              |
| 21/02/2023 | NA              |
| 22/02/2023 | NA              |
| 23/02/2023 | NA              |
| 24/02/2023 | NA              |
| 25/02/2023 | NA              |
| 26/02/2023 | NA              |
| 27/02/2023 | NA              |
| 28/02/2023 | NA              |

Note: For dates where no results are recorded, no dredging activities at Berth 101 were undertaken.