



Environmental Monitoring Summary Report

Port Kembla Gas Terminal

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

Reporting period: **1 July 2022 – 31 July 2022**

Date published: **20 August 2022**

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 publishing of monitoring data and results and reporting requirements 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 SSI-9471	Sch. 4 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 Cond. 12	Access to information – From the commencement of development under this approval, the Proponent shall: (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 Air Quality Management Plan (Stage 2A)	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. 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 Water Quality Management Plan (Stage 2A)	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. 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. 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: Marine Berth Construction – Land Based. The Stage 2A 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

3.2 Project activities for the reporting month

- Completion of the installation of wharf king piles
- Completion of rock drilling (required to advance king piles)
- Ongoing installation of tie-rods
- Commencement of backfilling of completed wall sections with sand and general fill
- Construction of wharf capping beam

3.3 Project activities for the upcoming month

- Ongoing installation of tie-rods
- Ongoing backfilling of completed wall sections
- Ongoing construction of wharf capping beam

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://ausindenergy.com/environmental-information/>

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 and west and central portion of the Outer Harbour stockpile area.

A summary of the air quality monitoring locations are 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 ² /month)	Monthly
10	Southern boundary of Berth 101			
12	Southern side of emplacement area, Outer Harbour			
14	Eastern side of emplacement area, Outer Harbour	Ambient Air Monitoring - High Volume Air Sampler	Total suspended particles (TSP) (ug/m ³)	Special Frequency 1 (24-hour period every 6 days)
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 ³)	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 (EPL Reference)		Monitoring parameter							
		Particulates Deposited Matter (Depositional dust gauge)**	Total Suspended Solids (High Volume Air Sampler)			PM10 (Real-time tracker)			Events above criteria*
			Average	Minimum	Maximum	Average	Minimum	Maximum	
Unit	g/m ² /month	mg/m ³	mg/m ³	mg/m ³	ug/m ³ /24 hours	ug/m ³ /24 hours	ug/m ³ /24 hours	No.	
Criteria	NA	NA	NA	NA	NA	NA	200	NA	
Berth 101 North	EPL 8	4.50	0.14	0.11	0.17	No PM10 monitoring required at this EPL Point			NA
	EPL 9	No Dust Deposition Gauge or HiVol required at this EPL Point				47.21	26.58	82.46	0
Berth 101 South	EPL 10	1.50	0.15	0.06	0.22	No PM10 monitoring required at this EPL Point			NA
	EPL 11	No dust gauge or HiVol required at this EPL Point				51.91	19.08	102.25	0
Outer Harbour South	EPL 12	0.90	0.05	0.03	0.07	No PM10 monitoring required at this EPL Point			NA
	EPL 13	No dust gauge or HiVol required at this EPL Point				27.92	8.23	59.08	0
Outer Harbour East	EPL 14	1.10	0.06	0.05	0.09	No PM10 monitoring required at this EPL Point			NA
	EPL 15	No dust gauge or HiVol required at this EPL Point				22.04	6.81	58.90	0
Outer Harbour North	EPL 22	0.90	0.06	0.04	0.09	No PM10 monitoring required at this EPL Point			NA
	EPL 23	No dust gauge or HiVol required at this EPL Point				18.58	4.43	71.30	0

*Includes individual number of times results recorded above Stage 2A performance criteria (200 ug/m³/24 hours). 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 license reference is provided below in Table 4-3.

Table 4-3 Harbour water quality monitoring locations

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

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) - Total suspended solids (TSS)	- Aluminium - Arsenic - Cadmium - Chromium - Cobalt - Copper - Lead - Mercury - Nickel - Oil and grease (visual) - pH - Total PAHs - Tributyltin - TSS - Zinc

4.2.2 Continuous Water Quality Monitoring Results

A summary of the results for the continuous water quality monitoring in the harbour is presented below in Table 4-5. Further details for exceedances as indicated below are provided in Appendix B, if any.

Table 4-5 Harbour water quality – Continuous monitoring results

Monitoring location	Statistic	Results - based on individual 15-minute median				
		Turbidity (NTU)	Temperature (Deg. C)	pH	Electrical conductivity (uS/cm)	Dissolved Oxygen (%sat)
Criteria		50 + BG ¹	N/A	6.5 – 8.5	N/A	70 – 110
WQM1 / EPL 1	Average	10.2	17.6	8.2	44572.0	97.8
	Minimum	2.8	13.8	7.6	1060.2	87.1
	Maximum	141.9	20.7	8.3	52872.2	104.7
	Events above criteria ²	1	-	-	-	-
WQM2 / EPL 16	Average	6.1	17.5	8.3	49548.6	100.7
	Minimum	1.6	14.7	8.3	9761.6	92.6
	Maximum	114.2	18.7	8.3	53250.1	106.2
	Events above criteria ²	0	-	-	-	-
WQM3 / EPL 17	Average	13.4	17.7	8.3	45503.4	94.6
	Minimum	2.3	14.4	7.7	4052.2	88.6
	Maximum	247.5	19.9	8.4	52970.0	99.5
	Events above criteria ²	3	-	-	-	-
WQM4 / EPL 18 (Background)	Average	9.4	17.6	8.3	48061.4	94.9
	Minimum	1.4	14.6	7.8	7703.4	90.9
	Maximum	166.1	19.5	8.4	53239.8	102.8
WQM5 / EPL 19 (Background)	Average	33.1	18.6	8.2	44815.1	100.8
	Minimum	0.0	13.7	7.4	1392.4	87.1
	Maximum	1478.9	22.7	8.5	52897.4	110.9

¹Total 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.

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



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 **Error! Not a valid bookmark self-reference..** Further details for exceedances as indicated below are provided in Appendix B. In preparation for the upcoming dredging work, the Stage 2B criteria has been adopted.

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

Monitoring Location	Statistic ²	Aluminium (dissolved)	Arsenic (dissolved)	Cadmium (dissolved)	Chromium (dissolved)	Cobalt (dissolved)	Copper (dissolved)	Lead (dissolved)	Mercury (dissolved)	Nickel (dissolved)	Total PAHs	Total Suspended Solids (TSS)	Tributyltin (as Sn)	Zinc (dissolved)
	Unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	Ug/L	ug/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 / EPL 1	Average	8.00	1.58	<1	0.80	<1	1.00	<0.2	<0.1	0.90	<0.05	<5	<2	6.00
	Minimum	6.00	1.30	<1	0.80	<1	1.00	<0.2	<0.1	0.70	<0.05	<5	<2	6.00
	Maximum	10.00	2.00	<1	0.80	<1	1.00	<0.2	<0.1	1.10	<0.05	<5	<2	6.00
	Events above criteria ¹	0	0	0	0	0	0	0	0	0	0	0	0	0
WQM2 / EPL 16	Average	5.00	1.54	<1	<0.5	<1	<1	<0.2	<0.1	<0.5	<0.05	<5	<2	<5
	Minimum	5.00	1.30	<1	<0.5	<1	<1	<0.2	<0.1	<0.5	<0.05	<5	<2	<5
	Maximum	5.00	2.00	<1	<0.5	<1	<1	<0.2	<0.1	<0.5	<0.05	<5	<2	<5
	Events above criteria ¹	0	0	0	0	0	0	0	0	0	0	0	0	0
WQM3 / EPL 17	Average	8.00	1.40	<1	0.60	<1	<1	<0.2	<0.1	0.70	<0.05	<5	<2	<5
	Minimum	8.00	1.20	<1	0.60	<1	<1	<0.2	<0.1	0.70	<0.05	<5	<2	<5
	Maximum	8.00	1.60	<1	0.60	<1	<1	<0.2	<0.1	0.70	<0.05	<5	<2	<5
	Events above criteria ¹	0	0	0	0	0	0	0	0	0	0	0	0	0
WQM4 / EPL 18	Average	10.00	1.46	<1	<0.5	<1	<1	<0.2	<0.1	0.90	<0.05	<5	<2	<5
	Minimum	10.00	1.20	<1	<0.5	<1	<1	<0.2	<0.1	0.90	<0.05	<5	<2	<5
	Maximum	10.00	2.10	<1	<0.5	<1	<1	<0.2	<0.1	0.90	<0.05	<5	<2	<5
WQM5 / EPL 19	Average	8.50	1.44	<1	0.70	<1	1.00	<0.2	<0.1	0.95	<0.05	26.00	<2	<5
	Minimum	6.00	1.20	<1	0.70	<1	1.00	<0.2	<0.1	0.70	<0.05	8.00	<2	<5
	Maximum	11.00	1.80	<1	0.70	<1	1.00	<0.2	<0.1	1.40	<0.05	42.00	<2	<5

¹Includes individual number of times results exceeded criteria. Refer to Appendix B for exceedance reports.

²Only 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 during the monitoring period, the LOR has been listed.



4.2.4 Water Quality Monitoring Results – Sediment basin discharge

During the reporting month, there were thirteen (13) authorised discharge events and two (2) 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/ sampling	Aluminium (dissolved)	Arsenic (dissolved)	Cadmium (dissolved)	Chromium (dissolved)	Cobalt (dissolved)	Copper (dissolved)	Lead (dissolved)	Mercury (dissolved)	Nickel (dissolved)	Zinc (dissolved)	Tributyltin (as Sn)	Total Suspended Solids (TSS)	pH	Oil & Grease	Total PAHs	Overflow Discharge?	Rainfall (mm) Roll. 5-day total
Unit	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	ngSn/L	mg/L	-	mg/L	µg/L	-	mm
Criteria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50	NA	Visible	NA	NA	NA
04/07/2022	5.00	0.20	<0.05	0.20	<0.1	0.50	<0.1	<0.1	<0.5	5	<2	<5	6.78	<5	<0.05	Y	326.4
05/07/2022	62.00	0.40	<0.05	0.90	<0.1	0.60	<0.1	<0.1	<0.5	2	<2	<5	6.78	5	<0.05	Y	331.4
06/07/2022	63.00	0.30	<0.05	1.10	<0.1	0.70	<0.1	<0.1	<0.5	2	<2	<5	7.53	<5	<0.05	N	-
07/07/2022	23.00	0.20	<0.05	1.10	<0.1	1.70	<0.1	<0.1	<0.5	4	<2	<5	7.42	<5	<0.05	N	-
08/07/2022	17.00	0.20	<0.05	1.10	<0.1	1.00	<0.1	<0.1	<0.5	3	<2	<5	7.20	<5	<0.05	N	-
11/07/2022	258.00	0.20	<0.05	1.00	<0.1	0.50	<0.1	<0.1	<0.5	2	<2	<5	6.71	<5	<0.05	N	-
12/07/2022	11.00	0.20	<0.05	1.10	<0.1	0.70	<0.1	<0.1	<0.5	3	<2	<5	7.24	<5	<0.05	N	-
15/07/2022	24.00	0.20	<0.05	1.00	<0.1	1.30	<0.1	<0.1	<0.5	5	<2	<5	6.90	<5	<0.05	N	-
19/07/2022	752.00	0.20	<0.05	1.10	<0.1	1.30	<0.1	<0.1	<0.5	4	<2	<5	7.02	<5	<0.05	N	-
20/07/2022	10.00	0.20	<0.05	1.10	<0.1	0.80	<0.1	<0.1	<0.5	4	<2	<5	6.95	<5	<0.05	N	-
22/07/2022	951.00	0.20	<0.05	1.20	<0.1	1.10	<0.1	<0.1	<0.5	3	<2	<5	7.39	<5	<0.05	N	-
25/07/2022	128.00	0.20	<0.05	0.60	<0.1	0.50	<0.1	<0.1	<0.5	2	<2	<5	7.10	<5	<0.05	N	-
26/07/2022	10.00	0.20	<0.05	1.20	<0.1	0.80	<0.1	<0.1	<0.5	4	<2	<5	6.99	<5	<0.05	N	-

4.3 Weather station results

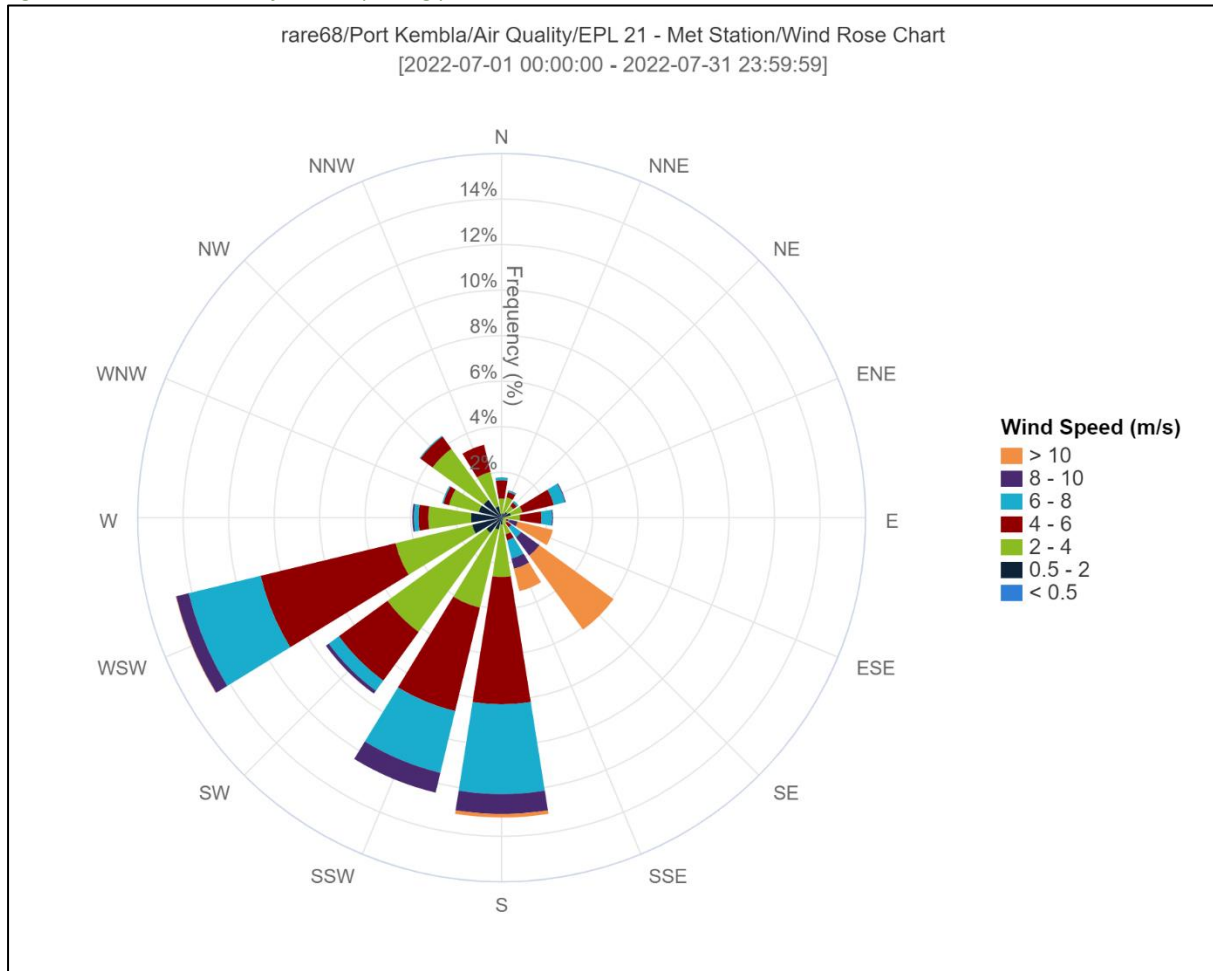
Under the EPL (Condition M6.2), AIE is required to monitor and record temperature, humidity, wind direction, wind velocity and rainfall at either a project weather station, or through analysis of equivalent weather information obtained from the Australian Bureau of Meteorology.

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 EPL Point 21
Wind velocity	m/s (15 min averaging period)	Average	5.17
		Minimum	0.27
		Maximum	15.73
Wind direction at 10 metres	Degrees (1 hour averaging period)	See Wind Rose chart for the reporting period on the following page.	
Rainfall rate	mm/hr (1 hour averaging period)	Average	0.05
		Minimum	0.00
		Maximum	1.23
Rainfall (Total)	mm/day	Average	12.83
		Minimum	0.00
		Maximum	188.00
Temperature	Degrees Celsius	Average	13.83
		Minimum	8.80
		Maximum	21.70
Humidity	%	Average	71.78
		Minimum	22.70
		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.

Table 5-1 Environmental complaints summary

Date	Complaint No.	Nature of the complaint	Follow-up close-out and or corrective action
NA	NA	No environmental complaints received for the reporting month	NA



Appendices

Appendix A - Monitoring location plan



<p>Paper Size ISO A4</p> <p>0 0.1 0.2 0.3 0.4</p> <p>Kilometers</p> <p>Map Projection: Transverse Mercator Horizontal Datum: GDA 1994 Grid: GDA 1994 MGA Zone 56</p>			<p>Australian Industrial Energy Port Kembla Gas Terminal</p> <p>EPL Licence Premises Stage 1</p>	<p>Project No. 21-27477 Revision No. - Date 04/06/2021</p> <p>FIGURE 1</p>
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Data source: Aerial imagery - nearmap, 2021 (image date 18/04/2018, date extracted 18/02/2019); General topo - NSW LPI DTD 2017 & 2015; Cadastre - NSW LPI DCDB 2017. Created by: sfoddy

Appendix B – Summary of Events Above Criteria

Each exceedance triggers an investigation including the 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.

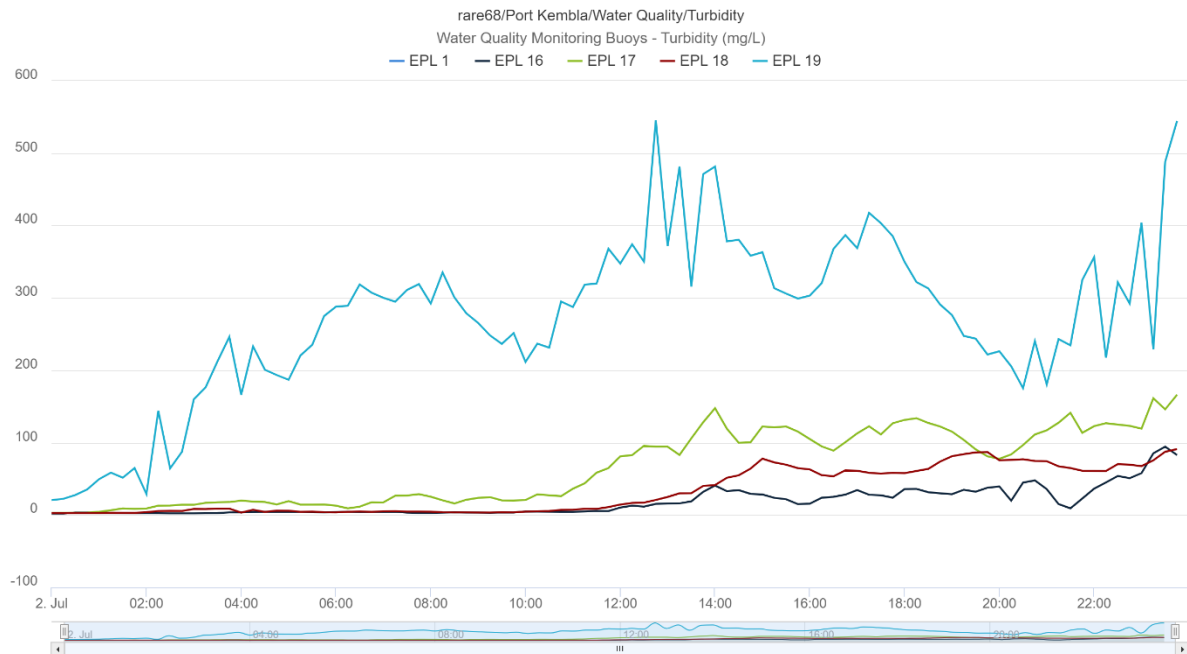
Air Monitoring Events Above Criteria

Date	Location	Exceedance value (ug/m ³ /24 hours)	Action Taken & Investigation Outcomes
N/A	-	-	-

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

Date	Max. Background Buoy Value (NTU)	Max. Receiver Buoy Value (NTU)	Action Taken & Investigation Outcomes
	Performance Criteria	50 + BG ¹	
Saturday 2 nd July 2022	WQM4 / EPL18: 90.93 WQM5 / EPL19: 545.56	WQM1 / EPL1: 107.94 WQM2 / EPL17: 166.15	Reviewed background data and shipping traffic. Elevated turbidity attributed to heavy rainfall. The onsite meteorological station (EPL 21) recorded 188 mm of rain on the 2/7/2022. Data recorded at the receiver buoys correlates with high turbidity observed at the background buoy, EPL19, where heavy flows occur through Allan’s Creek as rainwater discharges from the catchment.

Turbidity data for the 2/7/2022 is shown below, illustrating increased levels at EPL19 and then across the harbour as rainfall continued.



Date	Max. Background Buoy Value (NTU)	Max. Receiver Buoy Value (NTU)	Action Taken & Investigation Outcomes
	Performance Criteria	50 + BG ¹	
Sunday 3 rd July 2022	WQM4 / EPL18: 166.06 WQM5 / EPL19: 587.88	WQM2 / EPL17: 247.47	As above, elevated turbidity attributed to ongoing heavy rainfall. The onsite meteorological station (EPL 21) recorded 51.6 mm of rain on the 3/7/2022.
Monday 4 th July 2022	WQM4 / EPL18: 94.02 WQM5 / EPL19: 381.74	WQM2 / EPL17: 145.68	As above, elevated turbidity attributed to ongoing heavy rainfall. The onsite meteorological station (EPL 21) recorded 61.2 mm of rain on the 4/7/2022.

¹Total 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.