



Environmental Monitoring Summary Report

Port Kembla Gas Terminal

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

Reporting period: **1 September 2021 – 30 September 2021**

Date published: **21 October 2021**

1 Project background

AIE is developing 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 (the Approval) from the Minister for Planning and Public Spaces on 29 of April 2019, approval SSI-9471.

The construction of the Project is primarily associated with the establishment of a new berth facility at Port Kembla to enable an 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 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	Chemical storage
	Contaminated soil treatment
	Crushing, grinding or separating

2 Report purpose

This Monthly Environmental Monitoring Report has been prepared to satisfy the monitoring data reporting requirements of the approval and environmental management plans as detailed further below in Table 2-1 for the reporting month of September 2021 (the reporting month).

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 to 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	
AIE Air Quality Management Plan	Section 8.3	A summary of monthly data will be published on the Project's webpage, noting any exceedance of EPL trigger value, investigation, and response.	This report
AIE Water Quality Management Plan	Section 8.5	Regular reporting A summary of monthly data will be published on the PKGT AIE website in the form of a report. The report will note details for:	This report which will be made available on the Project Website.
		- Any exceedance of COC trigger values, the subsequent investigation and response/resolution	Section 4 and Appendix B
		- Complaint summary (if applicable)	Section 4.4
		- Statistics related to productivity of work (actual workflow vs planned) including details on any delays encountered	Section 3.1
		- Forecasting for future works	Section 3.3
		- Activities completed for the month	Section 3.2
		- Activities planner for the next month	Section 3.3
		- Current risks and issues, including impact level and mitigation measures.	Section 0



3 Project activities

3.1 Project status

Early Enabling works are scheduled for approximately 6 months and include:

- Excavation to allow removal of existing structures and services and facilitate construction of the quay wall
- Demolition/removal of Berth 101 and aboveground structures
- Demolition/removal of aboveground and underground services
- Relocation of existing stockpiles onsite
- Transport of spoil via road from the Marine Berth and Dredging Site Compound to the Emplacement Cell Construction Site in the Outer Harbour
- Platform excavation and stockpiling
- Processing demolished materials (for re-use or recycling) by others.
- Cone Penetration Testing in the Outer Harbour

3.2 Project activities for the reporting month

- Removal of above ground structures
- Concrete processing
- Berth 101 deck removal
- Berth 101 pile removal
- Bulk excavation of fill layer and stockpiling
- Transporting and Stockpiling of sand material at the Outer Harbour
- Bulk excavation of sand layer and transport to Outer Harbour

3.3 Project activities for the upcoming month

- Continued bulk excavation and transport to Outer Harbour
- Continued concrete processing
- Continued Berth 101 pile removal

3.4 Current project environmental risks and controls

The identified environmental risk and proposed mitigation measures and controls for the current and foreseeable construction activities are presented in Table 3-1.

Table 3-1 Project environmental risks

Ref.	Environmental risk		Associated activity	Mitigation measure
	Aspect	Impact		
2106_01	Water quality	Water pollution	Construction works adjacent to the Port Kembla Harbour	Implementation of the Construction Water Quality Monitoring Plan (CWQMP)
				Water quality monitoring and reporting
				Implementation of water discharge permit procedure for sediment basin discharge.
2106_02	Air quality	Generation of nuisance dust levels	Demolition works	Implementation of the Air Quality Management Plan
				Continuous air quality monitoring
2106_03	Environmental compliance	Breach of legislation and or Management Plan requirements	Commencement of and ongoing works	Establishment and implementation of environmental procedures and processes
				Liaisons with regulatory authorities and seek clarification where required
				Regular site inspections and coordination meetings with contractor

4 Environmental monitoring data

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

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 demolition area (Berth 101), and to the east, 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	PM ₁₀ (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 **Error! Reference source not found..**

Table 4-2 Air quality monitoring results

Monitoring Location (EPL Reference)		Monitoring parameter							
		Particulates Deposited Matter (Depositional dust gauge) ²	Total Suspended Particles (High Volume Air Sampler)			PM10 (Real-time tracker)			Events above criteria ¹
			Average	Minimum	Maximum	Average	Minimum	Maximum	
Unit	gm/m ² /month	ug/m ³	ug/m ³	ug/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	50	NA	
Berth 101 North	EPL 8	8.5	0.14	0.09	0.16	No PM10 monitoring required at this EPL Point			NA
	EPL 9	No dust gauge or HiVol required at this EPL Point				67.03	37.79	128.42	24
Berth 101 South	EPL 10	5.3	0.18	0.11	0.22	No PM10 monitoring required at this EPL Point			NA
	EPL 11	No dust gauge or HiVol required at this EPL Point				68.42	21.58	181.83	19
Outer Harbour South	EPL 12	2	0.05	0.02	0.07	No PM10 monitoring required at this EPL Point			NA
	EPL 13	No dust gauge or HiVol required at this EPL Point				14.99	3.33	29.16	0
Outer Harbour East	EPL 14	0.7	0.05	0.03	0.06	No PM10 monitoring required at this EPL Point			NA
	EPL 15	No dust gauge or HiVol required at this EPL Point				21.41	9.56	40.77	0
Outer Harbour North	EPL 22	1.5	0.06	0.03	0.10	No PM10 monitoring required at this EPL Point			NA
	EPL 23	No dust gauge or HiVol required at this EPL Point				22.88	6.05	57.07	1

¹Includes individual number of times results recorded above criteria. Refer to Appendix B for event above criteria reports.

²Assessed 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 licence 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		
16	WQM2 - North of the emplacement cell, Outer Harbour. No more than 20m from emplacement cell silt curtain	Primary- impact works area receiver	- Turbidity - Temperature	- Aluminium - Arsenic - Cadmium - Chromium (total) - Cobalt - Copper
17	WQM3 - South West of Berth 101	Primary- impact works area receiver	- pH - Electrical Conductivity	- Lead - Mercury - Nickel
18	WQM4 - Near the Pacific Ocean entrance to Outer Harbour	Background water quality	- Dissolved oxygen	- Tributyltin - TSS - Zinc - PAH
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	- Ensure water is free of oil & grease (visual) and can meet EPL requirement for TSS level (50mg/L)	- Aluminium - Arsenic - Cadmium - Chromium - Cobalt - Copper - Lead - Mercury - Nickel - Oil and grease (visual) - pH - PAHs - Tributyltin - TSS - Zinc

With the variation of the EPL in August 2021, a new ambient water quality monitoring point was added, Point 24. 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 pile removal activities. Turbidity can be used in place of TSS to enable real time readings. The correlation utilised during this reporting period is a turbidity value equivalent of 50 NTU to 50 mg/L TSS. Details of the monitoring requirements associated with EPL Point 24 are included below in Table 4-5 Silt curtain monitoring

Table 4-5 Silt curtain monitoring

EPL Ref.	Monitoring location	Type of monitoring	Parameter	Frequency
24	Mobile monitoring point within 5m of the outermost silt curtain near Berth101	Ambient water quality	- TSS (via grab sample or determined using turbidity reading and appropriate correlation)	Daily during pile removal activities

The piling barge arrived 9th September 2021, with monitoring undertaken at Point 24 thereafter during pile removal activities.

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 4-6. Further details for events above criteria as indicated below are provided in Appendix B.

Table 4-6 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		25 ¹ / 50 ³	N/A	Background +/- 0.5 pH units	Background +/- 20% (+ baseline)	Background - 20% (+ baseline)
WQM1 / EPL 1	Average	2.4	17.3	8.2	52768.3	96.5
	Minimum	1.5	16.2	8.1	47184.5	89.6
	Maximum	15.5	19.2	8.2	53303.1	105.9
	Events above criteria ¹	0	-	0	0	0
WQM2 / EPL 16	Average	2.1	17.0	8.2	53173.8	101.8
	Minimum	1.5	16.0	8.1	52371.4	92.7
	Maximum	12.7	18.5	8.2	53356.4	110.4
	Events above criteria ¹	0	-	0	0	0
WQM3 / EPL 17	Average	1.7	17.5	8.1	52954.6	99.9
	Minimum	1.2	16.3	8.1	50462.9	92.6
	Maximum	12.5	20.3	8.2	54016.6	108.4
	Events above criteria ¹	0	-	0	0	0
WQM4 / EPL 18 (Background)	Average	2.8	17.1	8.2	53127.5	100.3
	Minimum	1.7	15.6	8.1	51447.0	92.5
	Maximum	1228.3	18.5	8.2	54708.4	106.9
WQM5 / EPL 19 (Background)	Average	4.4	20.0	8.1	52307.0	102.0
	Minimum	1.6	16.7	8.0	48418.0	92.2
	Maximum	240.2	25.2	8.2	53673.8	112.8
Mobile WQM / EPL 24 (Ambient)	Average	0.74	Parameters not required at this EPL Point			
	Minimum	0.26				
	Maximum	1.33				
	Events above criteria ³	0				

¹Indicative value based on previous EPL's issued at Port Kembla indicate that 50 mg/l of suspended sediment is equal to 25 NTU (as per CWQMP).

²Includes individual number of times results exceeded background. Refer to Appendix B for report on results above criteria.

³Criteria applies to EPL 24 only based on the correlation of 50 mg/l of suspended sediment is equal to 50 NTU as specified in the EPL.



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..**

Table 4-7 Harbour water quality – Weekly grab sample results summary

Monitoring Location	Statistic	Aluminium	Anthracene	Arsenic	Benzo(a)pyrene	Cadmium	Chromium (total)	Cobalt	Copper	Lead	Mercury	Naphthalene	Nickel	Total PAHs	Total Suspended Solids (TSS)	Tributyltin	Zinc
Unit		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	Ug/L	ug/L	ug/L	ug/L	mg/L	ug/L	ug/L
Criteria ²		BL	0.10	BL	BL	5.50	4.40	1.00	1.3 + BL	4.4 + BL	0.40	70.00	70.00	NA	50 + BG	0.01	15 + BL
WQM1/ EPL 1	Average	12	<0.1	2.20	<0.1	<0.1	1.40	<1	1.00	<1	<0.05	<0.2	1.20	<0.1	4.80	<0.002	5.4
	Minimum	<10	<0.1	2.00	<0.1	<0.1	1.00	<1	<1	<1	<0.05	<0.2	<1	<0.1	2.00	<0.002	<1
	Maximum	20	<0.1	3.00	<0.1	<0.1	2.00	<1	1.00	<1	<0.05	<0.2	2.00	<0.1	8.00	<0.002	10.00
	Events above criteria ¹	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WQM2/ EPL16	Average	12	<0.1	2.00	<0.1	<0.1	1.40	<1	1.00	<1	<0.05	<0.2	1.00	<0.1	6.40	<0.002	1.8
	Minimum	<10	<0.1	1.00	<0.1	<0.1	1.00	<1	<1	<1	<0.05	<0.2	<1	<0.1	6.00	<0.002	<1
	Maximum	20	<0.1	3.00	<0.1	<0.1	2.00	<1	1.00	<1	<0.05	<0.2	1.00	<0.1	7.00	<0.002	3.00
	Events above criteria ¹	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WQM3/ EPL17	Average	12	<0.1	2.00	<0.1	<0.1	1.40	<1	1.00	<1	<0.05	<0.2	1.00	<0.1	6.80	<0.002	3.20
	Minimum	<10	<0.1	1.00	<0.1	<0.1	<1	<1	<1	<1	<0.05	<0.2	<1	<0.1	4.00	<0.002	2.00
	Maximum	20	<0.1	3.00	<0.1	<0.1	2.00	<1	1.00	<1	<0.05	<0.2	1.00	<0.1	9.00	<0.002	4.00
	Events above criteria ¹	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WQM4/ EPL18	Average	12	<0.1	2.00	<0.1	<0.1	1.40	<1	1.00	<1	<0.05	<0.2	1.00	<0.1	8.40	<0.002	4
	Minimum	<10	<0.1	1.00	<0.1	<0.1	1.00	<1	<1	<1	<0.05	<0.2	<1	<0.1	6.00	<0.002	<1
	Maximum	20	<0.1	3.00	<0.1	<0.1	2.00	<1	1.00	<1	<0.05	<0.2	1.00	<0.1	10.00	<0.002	11.00
WQM5/ EPL19	Average	10	<0.1	2.20	<0.1	<0.1	1.20	<1	1.00	<1	<0.05	<0.2	1.80	<0.1	9.00	<0.002	7.00
	Minimum	10	<0.1	2.00	<0.1	<0.1	1.00	<1	<1	<1	<0.05	<0.2	<1	<0.1	6.00	<0.002	1.00
	Maximum	10	<0.1	3.00	<0.1	<0.1	2.00	<1	1.00	<1	<0.05	<0.2	4.00	<0.1	16.00	<0.002	10.00

¹Includes individual number of times results reported above criteria. Refer to Appendix B for report on results on criteria.

²BL = Baseline BG = Background (WQM4 / WQM5)



4.2.4 Water quality monitoring results – sediment basin discharge

During the reporting month, there were zero (0) authorised discharge events and zero (0) discharge events as a result of excessive rainfall (>43.5 mm in any 5-day period).

Refer to Section 4.3 for site weather monitoring details. The date of the discharge event is provided below in Table 4-8.

A summary of the water quality results for the authorised discharge event from the sediment basin is included below in Table 4-8.

Table 4-8 Sediment basin discharge water quality – Pre-discharge and daily grab sample results

Date of discharge/ sampling	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a) anthracene	Chrysene	Benzo(b,j,k) fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-c,d) pyrene	Dibenzo(a,h) anthracene	Benzo(g,h,i) perylene	Benzo(a) pyrene TEQ	Total PAH
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Criteria	NA ¹	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
No Discharge Events	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Date of discharge/ sampling	Aluminium	Arsenic	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Zinc	Tributyltin	TSS	pH	Oil & Grease
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	-	-
Criteria	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50	NA	Visible
No Discharge Events	-	-	-	-	-	-	-	-	-	-	-	-	-	-

¹NA = No licence limit, monitoring requirement only

4.3 Weather station results

Under the EPL (Condition M5), 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 the Monitoring Location Plan in Appendix A. The monthly data obtained from the onsite weather station is provided below in Table 4-9.

Table 4-9 Site weather station monitoring results summary

Parameter	Unit of measure	Monthly statistic	Result EPL Point 21
Wind velocity	m/s (15min average)	Average	4.57
		Minimum	0.03
		Maximum	12.70
Wind direction at 10m	Degrees (1hr average)	Average	220.64
Rainfall rate	mm/hr (1hr average)	Average	0.06
		Minimum	0.00
		Maximum	6.60
Rainfall (Total)	mm	Monthly total	40.29
Temperature	Degrees Celsius	Average	16.54
		Minimum	9.90
		Maximum	29.30
Humidity	%	Average	61.42
		Minimum	12.30
		Maximum	95.10



4.4 Drone Survey

A monthly drone flyover is being undertaken to obtain visual photographs of the Early Enabling Works footprint and wider harbour area. The survey of the MBD Site Compound and Emplacement Cell Construction Site produces high-resolution imagery. This allows for a qualitative assessment of visible impacts of sediment plumes (if any) and silt curtain condition and position amongst other markers.

The drone footage provides a visual representation of the ecological health of Port Kembla and will indicate if there are any visual issues requiring investigation, such as sediment plumes or excessive runoff. No issues were noted in this month's survey. Select photos are provided in Appendix C from the September 2021 survey.



5 Environmental complaints

A summary of environmental complaints received via the telephone complaints line 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



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)	Investigation & Actions
1/09/2021	EPL 9	87.08	W wind direction during elevated levels. Elevated levels also recorded at publicly available monitors to the NW of site. Continued water cart operation for dust suppression controlled onsite levels.
1/09/2021	EPL 11	117.17	
2/09/2021	EPL 9	71.42	Elevated levels throughout day. Peak at 1pm during Northerly wind at 9m/s. Elevated levels also recorded at publicly available monitors to the NW and SW of site. Continued water cart operation for dust suppression controlled onsite levels.
2/09/2021	EPL 11	79.79	
2/09/2021	EPL 23	57.07	Elevated levels during early hours of the morning. Consistent with background readings and attributed to off-site source. Outer Harbour site not occupied at time of reading. No action required.
3/09/2021	EPL 9	67.50	Elevated levels throughout day during Northerly wind. Elevated levels also recorded at publicly available monitors to the NW and SW of site. Continued water cart operation for dust suppression controlled onsite levels.
3/09/2021	EPL 11	73.75	
4/09/2021	EPL 9	52.33	Elevated levels throughout day during Northerly wind. Elevated levels also recorded at publicly available monitors to the NW and SW of site. Continued water cart operation for dust suppression controlled onsite levels.
5/09/2021	EPL 9	50.54	WSW wind direction during elevated levels up to 10m/s. Consistent with background readings. Elevated levels also recorded at publicly available monitors to the NW of site. Elevated levels occurred outside of work hours. Dormant stockpiles were sealed at end of previous day and levels were controlled onsite upon recommencement.
5/09/2021	EPL 11	79.50	
6/09/2021	EPL 9	95.96	S wind direction during elevated levels up to 11m/s. Consistent with background readings. Elevated levels also recorded at publicly available monitors to the NW of site. Continued water cart operation for dust suppression controlled onsite levels.
7/09/2021	EPL 9	102.79	SW wind direction during elevated levels up to 10m/s. Consistent with background readings. Elevated levels also recorded at publicly available monitors to the NW of site. Continued water cart operation for dust suppression controlled onsite levels.
7/09/2021	EPL 11	73.33	
8/09/2021	EPL 9	72.50	Elevated levels throughout day during Westerly wind. Elevated levels also recorded at publicly available monitors to the NW and SW of site. Continued water cart operation for dust suppression controlled onsite levels.
8/09/2021	EPL 11	71.33	
9/09/2021	EPL 9	69.96	

Date	Location	Exceedance value (ug/m3)	Investigation & Actions
9/09/2021	EPL 11	84.88	Elevated levels throughout day during Westerly wind. Elevated levels also recorded at publicly available monitors to the NW and SW of site. Continued water cart operation for dust suppression controlled onsite levels.
10/09/2021	EPL 9	50.83	Elevated levels mainly throughout morning during Westerly wind peaking at 10m/s. Elevated levels also recorded at publicly available monitors to the NW and SW of site. Continued water cart operation for dust suppression controlled onsite levels.
10/09/2021	EPL 11	61.04	
11/09/2021	EPL 9	69.71	Elevated levels throughout day during changing wind direction reaching 7m/s. Continued water cart operation for dust suppression controlled onsite levels.
12/09/2021	EPL 9	90.13	Elevated levels throughout day. Peak at 2pm during Westerly wind up to 13m/s. Elevated levels also recorded at publicly available monitors to the NW and SW of site. Continued water cart operation for dust suppression controlled onsite levels.
12/09/2021	EPL 11	181.83	
13/09/2021	EPL 9	128.42	Elevated levels throughout day. Peak between 10am – 2pm during Southerly wind up to 11m/s. Elevated levels also recorded at publicly available monitors to the SW of site. Continued water cart operation for dust suppression controlled onsite levels.
17/09/2021	EPL 9	57.13	Elevated levels throughout day during Northerly wind up to 10m/s. Elevated levels also recorded at publicly available monitors to the NW and SW of site. Continued water cart operation for dust suppression controlled onsite levels.
17/09/2021	EPL 11	95.79	
18/09/2021	EPL 11	64.54	Elevated levels throughout day during Northerly wind up to 9m/s. Elevated levels also recorded at publicly available monitors to the NW and SW of site. Continued water cart operation for dust suppression controlled onsite levels.
19/09/2021	EPL 9	55.83	W to WSW wind direction during elevated level. Consistent with background readings. Elevated levels also recorded at publicly available monitors to the NW and SW of site. Elevated levels occurred outside of work hours. Dormant stockpiles were sealed at end of previous day and levels were controlled onsite upon recommencement.
20/09/2021	EPL 9	89.79	Elevated levels throughout day, peaking in afternoon as wind turns Westerly. Elevated levels also recorded at publicly available monitors to the NW and SW of site. Continued water cart operation for dust suppression controlled onsite levels.
20/09/2021	EPL 11	163.54	
21/09/2021	EPL 9	117.88	Elevated levels throughout day. Peak at 2pm during Southerly wind up to 13m/s. Elevated levels also recorded at publicly available monitors to the NW and SW of site. Levels controlled onsite.
21/09/2021	EPL 11	76.08	
22/09/2021	EPL 9	58.79	Elevated levels throughout day. Peak at 1pm during SE wind up to 10m/s. Elevated levels also recorded at publicly available monitors to the NW and SW of site. Continued water cart operation for dust suppression controlled onsite levels.

Date	Location	Exceedance value (ug/m3)	Investigation & Actions
23/09/2021	EPL 9	50.88	Elevated levels throughout day as wind fluctuates between W and N. Elevated levels also recorded at publicly available monitors to the NW and SW of site. Continued water cart operation for dust suppression controlled onsite levels.
23/09/2021	EPL 11	73.63	
24/09/2021	EPL 9	74.67	Elevated levels throughout day during Westerly wind up to 9m/s. Elevated levels also recorded at publicly available monitors to the NW and SW of site. Continued water cart operation for dust suppression controlled onsite levels.
24/09/2021	EPL 11	94.29	
25/09/2021	EPL 9	81.92	Elevated levels during morning as wind turns southerly. Elevated levels also recorded at publicly available monitors to the NW and SW of site. Continued water cart operation for dust suppression controlled onsite levels.
25/09/2021	EPL 11	65.83	Elevated levels during early morning during Westerly wind. Elevated levels also recorded at publicly available monitors to the NW and SW of site. Elevated levels occurred outside of work hours. Dormant stockpiles were sealed at end of previous day and levels were controlled onsite upon recommencement.
27/09/2021	EPL 11	64.71	Elevated levels during afternoon as wind turns northerly and reaches 9m/s. Elevated levels also recorded at publicly available monitors to the NW and SW of site. Continued water cart operation for dust suppression controlled onsite levels.
28/09/2021	EPL 9	50.54	Elevated levels throughout day during northerly wind and reaches 10m/s. Elevated levels also recorded at publicly available monitors to the NW and SW of site. Levels controlled onsite.
28/09/2021	EPL 11	98.96	
29/09/2021	EPL 9	51.04	Elevated levels throughout day during northerly wind and reaches 10m/s. Elevated levels also recorded at publicly available monitors to the NW and SW of site. Levels controlled onsite.
29/09/2021	EPL 11	56.13	
30/09/2021	EPL 9	60.04	Elevated levels during afternoon as wind turns southerly. Elevated levels also recorded at publicly available monitors to the NW and SW of site. Elevated levels occurred outside of work hours. Dormant stockpiles were sealed at end of previous day and levels were controlled onsite upon recommencement.

Water Monitoring Events Above Criteria

Date	Location	Recorded Value	Action Taken	Investigation Outcomes
No events above criteria in reporting period				

Appendix C – Drone Survey Images



Photograph 1. View of pile removal barge and silt curtain at Berth 101. Visible sediment as a result of a recent ship movement. Facing west. Captured 22/09/2021.



Photograph 2. View of sediment fence installed at the Outer Harbour site, facing west. Captured 22/09/2021