SYDNEY METRO – WESTERN SYDNEY AIRPORT
STATION BOXES AND TUNNELLING WORKS

EPL 21672 Monitoring Report February 2023

Sydney Metro – Western Sydney Airport, Station Boxes and Tunnelling

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1. Introduction

1.1. Background

The Sydney Metro Western Sydney Airport will become the transport spine for Greater Western Sydney, connecting communities and travellers with the new Western Sydney International (Nancy-Bird Walton) Airport (referred to as Western Sydney International) and the growing region.

The Project forms part of the broader Sydney Metro network. It involves the construction and operation of a 23km new metro rail line that extends from the existing Sydney Trains suburban T1 Western Line (at St Marys) in the north and the Aerotropolis (at Bringelly) in the south. The alignment includes a combination of tunnels and civil structures, including viaduct, bridges, surface and open-cut troughs between the two tunnel sections (Figure 1).

The Sydney Metro Western Sydney Airport EIS was prepared in October 2020 to assess the impacts of construction and operation of the Project and was placed on public exhibition between 21 October 2020 and 2 December 2020. The Project was declared a Critical State Significant Infrastructure (CSSI) Project and is listed in Schedule 5 of *State Environmental Planning Policy (State and Regional Development)*.

The Sydney Metro Western Sydney Airport was approved by the Minister for Planning and Public Spaces on 23 July 2021 (SSI 10051) under section 5.19 of the *Environmental Planning and Assessment Act 1997* (EP&A Act).

The Project will be delivered through the following stages:

- **Advanced and Enabling Works (AEW)** – Site investigations, modification of the existing transport network, power and water supply for construction sites, utility and stormwater diversions and some demolition works.
- **Station Boxes and Tunnelling Works (SBT)** – delivered through the following sub-stages:
  - Preparatory Works (the subject of this Plan) – Including NSW (off-airport) demolition works, site levelling/grading, site access and parking, utility and temporary services works, erection of demountable buildings and noise barriers, tunnelling preparatory works and use of ancillary facilities including onsite parking.
  - Bulk Excavation and Tunnelling Works – Preparatory Works (works not completed prior to Final CEMP approval), bulk excavation, acoustic shed installation, tunnelling and cross passage installation.
- **Surface and Civil Alignment Works (SCAW)** – Construction of bridges and viaducts to cross floodplains, watercourses and existing and proposed permanent infrastructure.
- **Stations, Systems, Trains, Operations and Maintenance (SSTOM)–** Station design and fitout, testing and commissioning, and operation of the Western Sydney Airport metro service
- **Finalisation Auxiliary Works.**

Each package of work is to be delivered under separate contracts on behalf of the proponent Sydney Metro.

Figure 1: Overview of the Project

1.1.1. Station Boxes and Tunnelling Works

The CPB Ghella JV has been engaged to deliver the SBT Works. The SBT Works include the design and construction of:

- Two sections of twin tunnels with a total combined length of approximately 9.8km, including associated portal structures; Orchard Hills to St Marys and Western Sydney International (WSI) airport to the new Aerotropolis Station in NSW
- Excavations at either end to enable trains to turn back and stub tunnels to enable future extensions
- Station box excavations with temporary ground support for four stations at St Marys, Orchard Hills, Airport Terminal and Aerotropolis
- Excavations for two intermediate service facilities, one in each of the tunnel sections at Claremont and Bringelly.

Completed sections of the SBT Works, including established construction worksites, will be progressively handed over to Sydney Metro to enable follow-on contractors to commence works.

1.2. Scope of this report

CPB Contactors Pty Limited have been issued an Environmental Protection Licence (EPL No. 21672) from the NSW Environment Protection Authority (EPA) for the Sydney Metro Western Sydney Airport Station Box and Tunnelling Package on behalf of Sydney Metro.

The EPL applies to the works approved under the Infrastructure Approval SSI-10051 associated with the delivery of Sydney Metro Western Sydney Airport SBT Works Off-airport worksites. The EPL does not apply to other Sydney Metro Western Sydney Airport works packages or On-airport SBT Worksites.

An overview of relevant jurisdiction at each SBT Worksite is provided in Table 1.

Table 1: SBT Worksite Jurisdiction

Jurisdiction	Worksite
NSW	St Marys
NSW	Claremont Meadows
NSW	Orchard Hills
On-Airport	Airport Portal Dive Structure
On-Airport	Airport Terminal and TBM shaft
On-Airport	Precast Segment Storage Facility
On-Airport	Primary Spoil Receival
NSW	Bringelly
NSW	Aerotropolis

Note: Worksites shown in grey are within the boundary of the Western Sydney International (On-Airport), are regulated under the *Commonwealth Airports Act 1996* and are outside the scope of EPL 21672.

This EPL Pollution Monitoring Report provides the results of all pollution monitoring required to be measured or monitored by the licensee of EPL 21672 as required by Section 66 of the *Protection of the Environment Operations Act 1997* (POEO Act) and with reference to EPA Publication *Requirements for publishing pollution monitoring data* (Environment Protection Authority, 2013).

Table 2 provides a summary of the EPL 21672 details.

Table 2: Licence Details

Licence Details	
Number:	21672
Copy of Licence	ViewPOEOLicence.aspx (nsw.gov.au)
Anniversary Date	30-May
Licensee	CPB Contractors Pty Limited
Premises	Sydney Metro Western Sydney Airport Station Box and Tunnelling Package St Marys to Orchard Hills and Bringelly to Aerotropolis St Marys NSW 2760
Scheduled Activity	Railway activities - railway infrastructure construction

2. Reporting Requirements

Under the *POEO Act,* holders of environment protection licences (licensees) must publish or make pollution monitoring data available to members of the public.

The *POEO Act* Section 66 requires

> "66 Conditions requiring monitoring, certification or provision of information, and related offences
>
> (1) **Monitoring** The conditions of a licence may require—
>
> (a) monitoring by the holder of the licence of the activity or work authorised, required or controlled by the licence, including with respect to—
>
> (i) the operation or maintenance of premises or plant, and
>
> (ii) discharges from premises, and
>
> (iii) relevant ambient conditions prevailing on or outside premises, and
>
> (iv) anything required by the conditions of the licence, and
>
> (b) the provision and maintenance of appropriate measuring and recording devices for the purposes of that monitoring, and
>
> (c) the analysis, reporting and retention of monitoring data.
>
> (2) **False or misleading information** A holder of a licence who supplies information, or on whose behalf information is supplied, to the appropriate regulatory authority under the conditions of the licence is guilty of an offence if the information is false or misleading in a material respect."

The primary objective of the pollution monitoring reporting requirements is that members of the public have access to the results of all pollution monitoring (which a licence specifies must be carried out) in a way that is meaningful to them. Data for the SBT Works is presented on a monthly sampling period.

The monitoring data that must be published and/or made available on request is any data that is obtained as a result of a monitoring condition on a licence that relates to air, water (surface or groundwater), noise and/or land pollution. The data to be published or provided is limited to data that relates to pollutants generated, discharged, or emitted from the licensed premises.

The data is provided in tabular format that is easy for the public to understand. Tables definitively display raw data values, while graphs and charts are useful for overviews and visualisation of long-term trends. Raw data will be provided upon request.

An upfront note will be included on the licensee's website or in this report to explain why any data may appear to be missing because there is no discharge or the level of pollutant being below the detection level of the measurement instrument.

It is possible from time to time that incorrect data may be published in good faith. As soon as practicable after the licensee becomes aware that the published pollution monitoring data is incorrect or misleading, licensees must then publish a correction log to correct this data that is incorrect or misleading (refer to Section 4).

Table 3 provides a summary of the pollution monitoring requirements of EPL 21672.

Table 3: EPL 21672 Pollution Monitoring Requirements

EPL Condition	Requirement	Report Reference
Weather		
M5.1	The licensee must monitor and record temperature, 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. Monitoring must: a) be representative of the premises; b) commence prior to any works that may cause sediment to leave the premises; and c) continue to be operated until soil disturbance activities cease at the premises and the site has been stabilised. The rainfall monitoring data collected in compliance with this condition can be used to determine compliance with condition L2.5	Section 3.1
Noise		
L5.9	In undertaking any works and activities outside of standard construction hours under condition L5.8, the licensee must comply with the following: a) Prepare a construction noise and vibration impact assessment in accordance with the Interim Construction Noise Guideline (DEC, 2009) that is to include: i. a description of the proposed works and activities outside of standard construction hours; ii. predictions of LAeq (15 minute) dB noise levels at noise sensitive receivers from these works and activities, where noise levels are predicted to be greater than those permitted under condition L5.3; and iii. a monitoring plan to validate the noise predictions, based on monitoring at the boundary of representative sensitive receivers during noise generating activities that are representative of the works and activities, including during the period/s predicted to have the highest noise level impacts. b) Undertake noise monitoring in accordance with the monitoring plan required by condition L5.9(a)(iii).	Section 3.2 Annexure B
M4.4	The licensee must undertake noise and vibration monitoring as directed by an authorised officer of the EPA. Where the monitoring is requested to take place on private land (for example a residential property) the licensee must request permission to access the premises in advance and keep a record of permission requests and responses. If a licensee is unable to obtain permission, the licensee must undertake the monitoring at an indicative location where possible and they must provide the response (including any nil response) to the EPA.	N/A No direction received from EPA to undertake noise and vibration monitoring during

EPL Condition	Requirement	Report Reference
		this reporting period.
Community Agreements The licensee may work outside standard construction hours (as defined in L5.1) in circumstances other than those permitted under conditions L5.3, L5.4, or any other condition of the license, subject to the condition outlined Section E1.		
E1.4	A noise validation monitoring plan must be submitted to the EPA for approval as part of the community agreement documentation prior to any OOHW occurring.	N/A Not triggered during this reporting period
E1.5	Validation monitoring must be undertaken for any OOHW that are the approved under condition E1.1 and must: a) be undertaken in accordance with the monitoring plan prepared under condition E1.4; b) be performed by a Competent Person; c) be performed on at least the first 2 occasions (day, evening, nights) where OOHW will be undertaken and are likely to impact Noise Sensitive Receivers; d) be performed on any other occasion (day, evening, night) where the nature of the works is likely to cause greater noise impacts than the first 2 occasions; e) be representative of the impacts in terms of monitoring locations, time and duration of measurements; and f) be recorded and provided to an EPA officer upon request	
Water		
P1.1	The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.	Section 3.3

EPL Condition	Requirement	Report Reference

1	Discharge and Monitoring	Discharge and Monitoring	The outlet(s) of the sediment basin(s) on the Orchard Hills site discharging to South Creek referred to in Condition P1.2
2	Discharge and Monitoring	Discharge and Monitoring	The outlet(s) of the sediment basin(s) on the Claremont site discharging to South Creek referred to in Condition P1.2
3	Discharge and Monitoring	Discharge and Monitoring	The outlet(s) of the sediment basin(s) on the St Marys site discharging to South Creek referred to in Condition P1.2
4	Discharge and Monitoring	Discharge and Monitoring	The outlet(s) of the sediment basin(s) on the Bringelly site discharging to Badgerys Creek referred to in Condition P1.2
5	Discharge and Monitoring	Discharge and Monitoring	The outlet(s) of the sediment basin(s) on the Aerotropolis site discharging to Thompson Creek referred to in Condition P1.2
6	Discharge and Monitoring	Discharge and Monitoring	The outlet of the water treatment plant on the Orchard Hills site discharging to South Creek
7	Discharge and Monitoring	Discharge and Monitoring	The outlet of the water treatment plant on the Claremont site discharging to South Creek
8	Discharge and Monitoring	Discharge and Monitoring	The outlet of the water treatment plant on the St Marys site discharging to South Creek
9	Discharge and Monitoring	Discharge and Monitoring	The outlet of the water treatment plant on the Bringelly site discharging to Badgerys Creek
10	Discharge and Monitoring	Discharge and Monitoring	The outlet of the water treatment plant on the Aerotropolis site discharging to Thompson Creek

M2.1 — For each monitoring/discharge point or utilisation area specified in the table\s below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.

Noted

M2.2

POINT 1,2,3,4,5

Pollutant	Units of measure	Frequency	Sampling Method
Oil and Grease	Visible	Special Frequency 1	Visual Inspection
pH	pH	Special Frequency 1	Probe
Turbidity	nephelometric turbidity units	Special Frequency 1	Probe

POINT 6,7,8,9,10

Pollutant	Units of measure	Frequency	Sampling Method
Aluminium	milligrams per litre	Monthly during discharge	Grab sample
Ammonia	milligrams per litre	Monthly during discharge	Grab sample
Chromium (VI) Compounds	milligrams per litre	Monthly during discharge	Grab sample
Copper	milligrams per litre	Monthly during discharge	Grab sample
Electrical conductivity	microsiemens per centimetre	Monthly during discharge	Grab sample
Nitrogen (total)	milligrams per litre	Monthly during discharge	Grab sample
Oil and Grease	Visible	Monthly during discharge	Visual Inspection
pH	pH	Monthly during discharge	Probe
Phosphorus (total)	milligrams per litre	Monthly during discharge	Grab sample
Total suspended solids	milligrams per litre	Monthly during discharge	Grab sample
Zinc	milligrams per litre	Monthly during discharge	Grab sample

Noted

Annexure D

M2.3 — For the purposes of Condition M2.2 and the Table thereto, 'Special Frequency 1' means:

a) less than 24 hours prior to a controlled discharge and daily for any continued controlled discharge, when it is safe to do so; and

Noted

EPL Condition	Requirement	Report Reference
	b) when rainfall causes a discharge from a sediment basin which has not been emptied within the design management period following cessation of a rainfall event, when it is safe to do so.	
E2.1	The licensee must undertake weekly surface water monitoring of receiving waterways at locations upstream, downstream and adjacent to each discharge point: 6, 7, 8, 9 and 10 identified in Condition P1.1. This monitoring must be undertaken for a minimum of 6 months from the date that points 6, 7, 8, 9 and 10 were added to the licence. Fortnightly monitoring results must include: a) quality and quantity of all parameters that are identified in the table in M2.2 for each discharge point: 6, 7, 8, 9 and 10; and b) results must be submitted to the EPA no more than 2 weeks after each monitoring event has occurred for a minimum of 6 months from the date that points 6, 7, 8, 9 and 10 were added to the licence.	Noted
E4.1	A) The licensee must undertake water quality sampling of all discharges from the WTPs (as identified as Point 6, 7, 8, 9 and 10 under condition P1.1) and submit to the EPA a WTP Performance Report within 10 business days of each sample result being taken. Sampling must be undertaken: i. daily on the first 3 days of discharges ii. weekly for the first month of discharges iii. fortnightly for the first 3 months iv. As per condition M2.2, following this sampling frequency or as directed by the EPA	Not triggered during this reporting period.
Additional Monitoring Conditions		
M4.5	The licensee must undertake monitoring, sampling, video recording and/or take photographs: a) if the EPA or licensee reasonably suspects that an event has occurred at the premises or in connection with the carrying out of the activities that has caused, is causing, is likely to cause or has the potential to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies); b) as soon as practicable; and c) as directed by an authorised officer.	Noted

3. Monitoring

Section 3 presents a summary of the monitoring programs completed in the reporting period from 1 February 2023 to 28 February 2023.

Detailed monitoring results for each program are presented in the Appendices.

3.1. Meteorological Data

Meteorological data for the Project is taken from Badgerys Creek Automatic Weather Station (AWS) but the recent results in BOM since December has not been updated and hence the daily Rainfall from the nearest station i.e., Penrith Lakes AWS has been considered.

The total rainfall recorded during the reporting period was 56.4 mm with eight days exceeding one millimetre of rain and two days of rain exceeding 10 mm.

During the reporting period, there were 27 days where the maximum wind gust recorded was greater than 25 km/hr, 2 days where the maximum wind gust recorded was greater than 50 km/h and 2 days where the maximum wind gust was greater than 60 km/hr. Winds recorded during the reporting period were predominantly easterly component, however there was variability throughout the month.

Detailed weather observation records for the reporting period are presented in Annexure A.

This information is used daily on site to assess daily activities and consider mitigation measures as required.

Table 4: Weather summary and trigger weather events for reporting period[1]

Weather Event	Observation
Minimum temperature	10.2 °C
Maximum temperature	38.7 °C
Total rainfall	56.4 mm
Number of days with rain (>1mm)	8 Day
Number of days with rain (>10mm)	2 Days
Number of days with >25km/hr wind[2]	30 Days
Number of days with >50km/hr wind	2 Days
Number of days with >60km/hr wind	2 Days

[1]Weather summary based on data from the 1 February 2023 to 28 February 2023 (28 days).

[2]Weather data from Penrith Lakes AWS {station 067113}.

3.2. Noise

Noise monitoring is a requirement of the following conditions of EPL 21672:

- L5.9, E1.4 Monitoring to validate the noise predictions for works undertaken outside of the standard construction hours as per the construction noise impact assessment
- M7.6 Noise monitoring following noise and vibration complaints
- M4.4 Noise and vibration monitoring as directed by an authorised officer of the EPA.

Table 5 provides a summary of noise monitoring events conducted during the reporting period. Detailed noise monitoring results and comments are presented in Annexure B.

Table 5: Summary of noise monitoring for reporting period

Date	Monitoring Location	Attended/Continuous	Description
01/02/2023	40 Lansdowne Road, Orchard Hills	Attended	Asphalting (OOHW)
01/02/2023	40 Lansdowne Road, Orchard Hills	Attended	Asphalting (OOHW)
09/02/2023	SBT Site Claremont Meadows	Attended	Hand tools within shaft
09/02/2023	Gipps Street, Claremont Meadows	Attended	Hand tools within shaft
09/02/2023	1 Dolphin Close, Claremont Meadows	Attended	Hand tools within shaft
13/02/2023	77 Kent Road, Orchard Hills	Attended	TBM Crane installation
15/02/2023	77 Kent Road. Orchard Hills	Attended	TBM Crane installation, Concrete Pour, Excavation
27/02/2023	83 Kent Road, Orchard Hills	Attended	TBM Assembly, Station Box Excavation

Attended monitoring undertaken during this reporting period measured exceedances of the predicted noise levels during three monitoring events (Table 6). Measured exceedances were the result of extraneous noise sources on both occasions as outlined in Annexure B.

Table 6: Recorded exceedances within reporting period

Date	Monitoring Location	Reason for exceedance
13/02/2023	77 Kent Road, Orchard Hills	Exceedances are attributed to extraneous noise sources (overhead planes and birds), whilst construction activities inaudible during this event.
15/02/2023	77 Kent Road, Orchard Hills	Exceedances are attributed to extraneous noise sources (traffic, overhead planes, and birds), whilst construction activities inaudible during this event.
27/02/2023	83 Kent Road, Orchard Hills	Exceedances are attributed to extraneous noise sources (traffic, overhead planes, and birds), whilst construction activities inaudible during this event.

3.3. Water

3.3.1. Discharge to Water

The discharge of water from sediment basins and settling containers occurred at the following discharging monitoring points/locations during this reporting period:

- SBT-002
- SBT-008
- SBT-010
- SBT-011
- SBT-013
- SBT-014
- On-Site

Discharge to natural waterways, and local stormwater systems is directly linked to the surface water monitoring program, where monitoring is undertaken to:

- Measure the effectiveness of environmental controls in minimising and managing environmental impacts
- Demonstrate compliance with relevant stakeholder conditions

The EPL discharge criteria apply to the sediment basins and settling containers identified and located on Electronic File EF22/5394 and approved by the EPA. Discharge to water events must adhere to the following Limit Conditions of EPL 21672:

- L1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.
- L2.1 For each monitoring/discharge point or utilisation area specified in the table/s below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.
- L2.2 Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.

- L2.3 To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those specified in the table\s.
- L2.4 Water and/or Land Concentration Limits

The active basins and discharge points during this reporting period are summarised in Table 7.

The discharge events and water quality monitoring data during the reporting period are summarised in Annexure C.

Table 7: SBT Discharge Point Register (electronic file EF22/5394) (Rev 1, submitted 4th of October 2022)

ID	Construction Status	EPA ID	Easting	Northing	Description of location of discharge point	Catchment name	Name of nearest waters	Direct discharge to waters	Location description	Date added	Revision Added
SBT-001	Inactive	3	294119.4684	6261927.807	The outlet of the sediment basin(s) on the St Marys site North of Station street	South Creek	South Creek	No	Discharge into local stormwater system	04/10/2022	1
SBT-002	Active	3	294041.6184	6261905.9783	The outlet of the sediment basin(s) on the St Marys site at former Plaza	South Creek	South Creek	No	Discharge into local stormwater system	04/10/2022	1
SBT-003	Active	2	292018.2099	6261255.3813	The outlet of the sediment basin on the Claremont Meadows Site south of Great Western Highway	South Creek	Claremont Creek	No	Discharge into local stormwater system	04/10/2022	1
SBT-004	Active	2	292072.0196	6261326.0789	The outlet of the sediment basin on the Claremont Meadows site West of Gipps Street	South Creek	Claremont Creek	No	Discharge into local stormwater system	04/10/2022	1
SBT-005	Inactive	1	292053.3538	6259530.3707	The outlet of the sediment basin on the Orchard Hills site	South Creek	South Creek	No	Discharge into vegetated / stabilized land	04/10/2022	1
SBT-006	Inactive	1	292065.7524	6259303.9277	The outlet of the sediment basin on the Orchard Hills site south of M4	South Creek	South Creek	No	Discharge into vegetated / stabilized land	04/10/2022	1
SBT-007	Inactive	1	291857.7443	6259276.8491	The outlet of the sediment basin on the Orchard Hills site east of Kent Road	South Creek	Unnamed tributary of South Creek	Yes	Discharge into creek	04/10/2022	1
SBT-008	Active	1	291857.4535	6259221.8921	The outlet of the sediment basin on the Orchard Hills site east of Kent Road	South Creek	Unnamed tributary of South Creek	Yes	Discharge into creek	04/10/2022	1
SBT-009	Inactive	1	291808.8936	6258854.9307	The outlet of the sediment basin on the Orchard Hills site north of Lansdowne Road	South Creek	South Creek	No	Discharge into vegetated/stabilized land	04/10/2022	1
SBT-010	Inactive	1	291963.0058	6258833.1224	The outlet of the sediment basin on the Orchard Hills site north of Lansdowne Road	South Creek	South Creek	No	Discharge into vegetated / stabilized land	04/10/2022	1
SBT-011	Active	1	291975.5092	6258798.5199	The outlet of the sediment basin on the Orchard Hills site south of Lansdowne Road	South Creek	South Creek	No	Discharge into vegetated/stabilized land	04/10/2022	1
SBT-012	Active	1	291803.9504	6258604.2804	The outlet of the sediment basin on the Orchard Hills site south of Lansdowne Road	South Creek	South Creek	No	Discharge into vegetated/stabilized land	04/10/2022	1
SBT-013	Active	4	289481.8143	6245851.2954	The outlet of the sediment basin on the Bringelly site west of Derwent Road	South Creek	Badgerys Creek	No	Discharge into vegetated / stabilized land	04/10/2022	1
SBT-014	Active	5	290853.6384	6243780.4655	The outlet of the sediment basin on the Aerotropolis site east side of Aerotropolis	South Creek	Thompsons Creek	No	Discharge into vegetated/stabilized land	04/10/2022	1

3.3.2. Receiving Waterways

As per Condition E2.1 of the EPL, weekly surface water monitoring of receiving waterways commenced on 14 February 2023 and will be undertaken for a minimum of six months. For each sampling event undertaken during the reporting period, samples were taken at each monitoring location for the analytes listed in Condition M2.1 for Points 6,7,8,9 and 10.

Wet weather monitoring is carried out as per the following:

- A minimum of once per 3 months where rainfall does not exceed 25mm
- In the event of a continuous rainfall event of >27.4mm is received in the local catchment during a 24-hour period (as recorded at the SBT Works rain gauge(s) or nearby weather station) and has generated runoff from site.

Surface water monitoring at receiving water ways was undertaken on the following dates during this reporting period:

- 14 February 2023
- 21 February 2023
- 28 February 2023

A review of the data for these monitoring events can be found in Annexure D.

4. Correction Log

It is possible from time to time for incorrect data to get published in good faith.

As soon as practicable after the licensee becomes aware that the published pollution monitoring data is incorrect or misleading, licensees must then publish a correction log to correct this data that is incorrect or misleading.

There are no matters included in the correction log for this reporting period.

Annexure A Weather Observations

Table 8: Weather Observations: Badgerys Creek AWS {station 067108}.

Date	Temperatures		Rain	9am		3pm	
	Min	Max		Temperature	Relative Humidity	Temperature	Relative Humidity
	°C		mm	°C	%	°C	%
1/02/2023	17.2	30.8	0	23.4	64	29.2	52
2/02/2023	18.1	34.4	0	23	76	32.1	35
3/02/2023	16.8	29.3	0	21.8	45	29	32
4/02/2023	13.6	27.8	-	19.1	41	27.2	24
5/02/2023	10.2	31.2	0	21.7	46	29.9	31
6/02/2023	17.3	31.8	0	23.2	67	30.7	43
7/02/2023	19.4	30.6	0	23.8	71	28.6	58
8/02/2023	18.4	28.2	4.4	22.9	71	23.8	69
9/02/2023	18.2	24.6	9.6	20.7	98	23.3	70
10/02/2023	15	33.3	0.6	20.2	83	31.3	38
11/02/2023	15.2	38.7	0	22.4	80	36.9	25
12/02/2023	18.3	31.4	0	25.7	43	28.9	50
13/02/2023	18.7	26.5	0	19.8	76	24.9	53
14/02/2023	17.4	20.4	0	19.5	68	19	91
15/02/2023	15.7	29.8	11.6	19.6	83	28.1	45
16/02/2023	13.5	33.6	0	20.7	78	32.3	31
17/02/2023	15.4	34.8	0	21.3	78	34.1	35
18/02/2023	16.1	37.9	0	22.9	75	36.6	32
19/02/2023	17.7	29.8	8.8	22	72	27.8	58
20/02/2023	20.2	34.6	0	24.4	77	33.7	46
21/02/2023	19	32.5	0	23.7	77	30.8	44
22/02/2023	17.8	21	16.8	18.1	91	19.9	78
23/02/2023	14.5	24.3	2	19.2	72	22.5	64
24/02/2023	14.2	27.9	1.2	18.8	79	24.7	54
25/02/2023	13.1	29.1	0	19.8	77	27.4	37
26/02/2023	14.5	34.9	0	18	94	33	32
27/02/2023	18	27.7	0	23.1	73	26.5	60
28/02/2023	19.4	28.8	1.4	22.3	73	27.5	57

Notes:

[1]Hyphen in place of lack of representative data as per Commonwealth of Australia , Bureau of Meteorology

Table 9: Wind Observations: Badgerys Creek AWS {station 067108}.

Date	Maximum wind gusts			9am		3pm	
	Direction	Speed	Time	Direction	Speed	Direction	Speed
		km/h	Local		km/h		km/h
1/02/2023	ESE	33	15:33	WSW	6	ENE	19
2/02/2023	NW	44	15:20	N	17	NNE	15
3/02/2023	NW	46	11:11	WNW	26	W	24
4/02/2023	SW	43	14:59	WSW	20	SW	26
5/02/2023	ESE	33	15:44	SSW	2	ENE	9
6/02/2023	ENE	33	16:39	ENE	7	NNE	11
7/02/2023	SE	33	15:50	NNE	6	E	22
8/02/2023	SSE	31	14:29	NNE	2	SSE	20
9/02/2023	SE	31	15:23	NE	6	SE	15
10/02/2023	ESE	33	18:32	NW	6	E	7
11/02/2023	NW	35	15:41	S	2	NNE	11
12/02/2023	ESE	35	14:58	SW	20	SE	22
13/02/2023	ESE	26	16:50	S	9	E	11
14/02/2023	SSW	26	8:25	SSW	13		Calm
15/02/2023	ENE	26	16:39	NW	7	NNE	6
16/02/2023	E	31	16:23		Calm	NNE	11
17/02/2023	E	31	16:27	ESE	2	ENE	9
18/02/2023	SSW	87	17:18	ESE	6	NE	13
19/02/2023	NE	20	14:24	SSW	11	E	9
20/02/2023	E	33	15:55	ENE	4	NNE	11
21/02/2023	SSE	43	16:49	SSE	4	ESE	17
22/02/2023	ESE	35	15:43	SSW	11	ESE	11
23/02/2023	ENE	35	13:43	SW	6	E	22
24/02/2023	ENE	31	15:53	S	6	ENE	15
25/02/2023	NNE	33	13:17	NE	2	N	13
26/02/2023	WSW	39	21:36		Calm	NNE	11
27/02/2023	SE	26	15:23	E	4	ESE	13
28/02/2023	NE	146	22:18	S	2	ENE	11

Annexure B Noise Monitoring Results

Table 10: Noise Monitoring Results

Date	Time	Works Period	Construction Activity	Activity Location	Monitoring Location	NML (dBA)	Predicted (dBA)	Additional Mitigation Measures	Recorded $L_{eq, 15min}$ (dBA)	L_{Amax}	L_{Amin}	Exceedance of Predicted (dBA)	Exceedance of Predicted	Comments
01/02/2023	9:30pm	OOHW1	Asphalting Works	SBT Orchard Hills	40 Lansdowne Road, Orchard Hills	49	85	LB, M, SN, IB, PV, RO	63.5	75.9	58.5	-21.5	No	Verification noise monitoring. Local traffic and individuals talking caused dramatic increases in noise levels during this monitoring event.
01/02/2023	10:15pm	OOHW2	Asphalting Works	SBT Orchard Hills	40 Lansdowne Road, Orchard Hills	46	85	LB, M, SN, IB, PV, RO	65.5	91.8	59.7	-19.5	No	Verification noise monitoring.
09/02/2023	1:30pm	Standard	Hand tools within shaft	SBT Claremont Meadows shaft	SBT Site Claremont Meadows	47	N/A	LB, M, RO	71.1	84.1	77.3	N/A	N/A	Verification noise monitoring. Construction noise was the dominant noise source.
09/02/2023	2:30pm	Standard	Hand tools within shaft	SBT Claremont Meadows shaft	Gipps Street, Claremont Meadows	47	N/A	LB, M, RO	71.6	89.8	65.2	N/A	N/A	Verification noise monitoring. Local traffic and birds were found to be the dominant noise source. Construction activities were inaudible during this monitoring event.
09/02/2023	2:50pm	Standard	Hand tools within shaft	SBT Claremont Meadows shaft	1 Dolphin Close, Claremont Meadows	47	N/A	LB, M, RO	50.2	79.5	39.6	N/A	N/A	Verification noise monitoring. Local traffic, residential activities, and birds were found to be the dominant noise sources. Construction activities were almost entirely inaudible during this monitoring event.
13/02/2023	6:25pm	OOHW1	TBM Crane installation	SBT Orchard Hills	77 Kent Road, Orchard Hills	49	49	LB	54.3	76.5	45.1	5.3	Yes	Verification noise monitoring. Overhead planes, and birds were found to be the dominant noise sources. Construction activities were inaudible during this monitoring event.
15/02/2023	6:45pm	OOHW1	TBM Assembly, Concrete pour, Station box excavation	SBT Orchard Hills	77 Kent Road, Orchard Hills	49	49	LB	53	72.9	45.2	4.0	Yes	Verification noise monitoring. Traffic, overhead planes, and birds were found to be the dominant noise sources. Construction activities were inaudible during this monitoring event.
27/02/2023	6:15pm	OOHW1	TBM Assembly, Station box excavation	SBT Orchard Hills	83 Kent Road, Orchard Hills	49	48	LB	48.7	67.9	39.8	0.7	Yes	Verification noise monitoring. Traffic, overhead planes, and birds were found to be the dominant noise sources. Construction activities were inaudible during this monitoring event.

OOHW1 is defined as:

a. 6:00pm to 10:00pm (evenings) Monday to Saturday
b. 7:00am to 8:00am and 1:00pm to 10:00pm (day & evening) Saturday and
c. 8:00am to 6:00pm Sunday and public holidays (days).

OOHW2 is defined as:

a. 10:00pm to 7:00am (nights) Monday to Saturday and
b. 6:00pm to 8:00am (nights) Sundays and public holidays.

Additional Mitigation Measures

LB = Letter box drops

M = Monitoring

SN = Specific Notification

RO = Project Specific Respite Offer

IB = Individual Briefing

PC = Phone Calls and Emails

AA = Alternate Accommodation

Annexure C Discharge to water

Table 11: Discharge Water Quality (Condition P1.1: Points 6,7,8,9,10)

Discharge Monitoring Point ID	Type of Monitoring Point	Type of Discharge Point	Date	Discharge Permit No.	Oil and Grease (Not Visible)	pH (6.5 – 8.5)	Turbidity (50 NTU)
SBT-002	Basins and settling containers	Discharge into local stormwater system	2/02/2023	032	Not visible	7.6	0
SBT-002	Basins and settling containers	Discharge into local stormwater system	2/02/2023	033	Not visible	6.92	41.5
SBT-014	Basins and settling containers	Discharge into vegetated/stabilized land	2/02/2023	034	Not visible	7.1	20
SBT-014	Basins and settling containers	Discharge into vegetated/stabilized land	6/02/2023	035	Not visible	7.3	42
SBT-008	Basins and settling containers	Discharge into Creek	6/02/2023	037	Not visible	7.38	20
SBT-002	Basins and settling containers	Discharge into local stormwater system	15/02/2023	038	Not visible	7.9	9.9
SBT-002	Basins and settling containers	Discharge into local stormwater system	15/02/2023	039	Not visible	7.06	21
SBT-002	Basins and settling containers	Discharge into local stormwater system	16/02/2023	040	Not visible	7.16	16.7
SBT-002	Basins and settling containers	Discharge into local stormwater system	21/02/2023	041	Not visible	7.04	20.2
SBT-002	Basins and settling containers	Discharge into local stormwater system	21/02/2023	042	Not visible	7.8	43.3
SBT-002	Basins and settling containers	Discharge into local stormwater system	22/02/2023	043	Not visible	6.78	49.7
SBT-002	Basins and settling containers	Discharge into local stormwater system	22/02/2023	044	Not visible	6.55	47.7
SBT-002	Basins and settling containers	Discharge into local stormwater system	22/02/2023	045	Not visible	7.61	45.1
SBT-002	Basins and settling containers	Discharge into local stormwater system	23/02/2023	046	Not visible	7.62	49.9
SBT-002	Basins and settling containers	Discharge into local stormwater system	23/02/2023	047	Not visible	6.87	44.1
SBT-002	Basins and settling containers	Discharge into local stormwater system	24/02/2023	048	Not visible	7.54	49.6
SBT-002	Basins and settling containers	Discharge into local stormwater system	27/02/2023	049	Not visible	8.24	28
On Site	Basins and settling containers	Discharge into local stormwater system	28/02/2023	054	Not visible	7.48	11.1
SBT-004	Basins and settling containers	Discharge into local stormwater system	28/02/2023	055	Not visible	7.29	46.1
SBT-013	Basins and settling containers	Vegetated / stabilized land	28/02/2023	060	Not visible	7.22	<50
SBT-008	Basins and settling containers	Discharge into vegetated/stabilized land	27/02/2023	065	Not visible	7.26 & 7.29	27 & 12
SBT-010	Basins and settling containers	Discharge into vegetated/stabilized land	27/02/2023	066	Not visible	7.21 & 7.25	24 & 7
SBT-011	Basins and settling containers	Discharge into vegetated/stabilized land	27/02/2023	067	Not visible	N/A	N/A
SBT-010	Basins and settling containers	Discharge into vegetated/stabilized land	13/02/2023	068	Not visible	7:15	37

Surface Water Monitoring at Receiving Waterways

Table 12: February Surface Water Monitoring Results at Receiving Waterways at SBT 6 (OHE)

Analyte		SBT-6U	SBT-6A	SBT-6D	SBT-6U	SBT-6A	SBT-6D	SBT-6U	SBT-6A	SBT-6D
	Post Rain Event	No			No			No		
	Unit	14/02/2023			21/02/2023			28/02/2023		
pH	pH	7.59	8.28	7.48	7.31	7.28	7.26	7.81	7.86	7.92
Electrical Conductivity	µS/cm	211	1040	1470	796	920	910	1090	784	485
Total Suspended Solids	mg/L	14	34	45	196	238	303	1080	253	127
Aluminium	mg/L	0.27	6.21	1.08	2.60	4.83	5.06	7.44	3.64	3.42
Chromium (VI)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Copper	mg/L	<0.001	0.013	0.001	0.006	0.002	0.003	0.022	0.006	0.005
Zinc	mg/L	<0.005	0.016	0.005	0.024	0.023	0.022	0.076	0.02	0.013
Total Phosphorous	mg/L	0.08	0.29	0.06	0.41	0.43	0.24	1.1	0.26	0.11
Total Nitrogen	mg/L	1.1	4.01	0.8	1.83	1.9	2.8	3.5	1.7	1.4
Ammonia	mg/L	0.07	0.07	0.02	0.10	0.05	0.05	0.09	0.15	0.11

Table 13: February Surface Water Monitoring Results at Receiving Waterways at SBT 7 (CMF)

Analyte		SBT-7U	SBT-7A	SBT-7D	SBT-7U	SBT-7A	SBT-7D	SBT-7U	SBT-7A	SBT-7D
	Post Rain Event	No			No			No		
	Unit	14/02/2023			21/02/2023			28/02/2023		
pH	pH	7.48	7.39	8.47	7.25	7.35	7.25	7.8	8.04	7.85
Electrical Conductivity	µS/cm	6200	1280	5970	884	862	883	4850	1170	3860
Total Suspended Solids	mg/L	<5	20	<5	42	57	7	<5	29	<5
Aluminium	mg/L	0.05	0.62	0.14	1.62	1.50	0.12	0.11	0.94	0.15
Chromium (VI)	mg/L	<0.001	<0.001	<0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Copper	mg/L	0.001	0.001	0.002	0.002	0.002	<0.001	0.005	0.009	0.005
Zinc	mg/L	<0.005	0.015	<0.005	0.028	0.023	<0.005	0.015	0.025	0.014
Total Phosphorous	mg/L	0.022	0.03	0.1	0.15	0.10	0.11	0.07	0.04	0.05
Total Nitrogen	mg/L	0.29	1.81	1.33	2.22	1.78	1.84	1.3	2.4	1.5
Ammonia	mg/L	0.21	0.24	0.11	0.3	0.28	0.08	0.21	0.21	0.09

Table 14: February Surface Water Monitoring Results at Receiving Waterways at SBT 8 (STM)

Analyte		SBT-8U	SBT-8A	SBT-8D	SBT-8U	SBT-8A	SBT-8D	SBT-8U	SBT-8A	SBT-8D
	Post Rain Event	No			No			No		
	Unit	14/02/2023			21/02/2023			28/02/2023		
pH	pH	8.47	7.74	7.84	7.27	7.27	7.26	5.73	5.51	5.54
Electrical Conductivity	µS/cm	715	711	708	743	741	720	730	789	724
Total Suspended Solids	mg/L	107	99	106	37	42	51	35	47	33
Aluminium	mg/L	3.16	3.61	3.54	1.32	2.01	1.6	1.06	0.68	0.17
Chromium (VI)	mg/L	0.003	0.004	0.004	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Copper	mg/L	0.006	0.006	0.006	<0.001	0.002	0.016	0.006	0.004	0.003
Zinc	mg/L	0.016	0.017	0.016	0.006	0.016	0.026	0.014	0.008	0.006
Total Phosphorous	mg/L	0.36	0.32	0.32	0.17	0.18	0.12	0.06	0.07	0.08
Total Nitrogen	mg/L	3.54	1.71	0.08	1.39	1.48	1.19	0.7	0.7	0.7
Ammonia	mg/L	0.08	0.08	0.08	0.04	0.04	0.04	0.2	0.2	0.3

Table 15: February Surface Water Monitoring Results at Receiving Waterways at SBT 9 (BSF)

Analyte		SBT-9U	SBT-9A	SBT-9D	SBT-9U	SBT-9A	SBT-9D	SBT-9U	SBT-9A	SBT-9D
	Post Rain Event	No			No			No		
	Unit	14/02/2023			21/02/2023			28/02/2023		
pH	pH	7.89	8.22	8.07	7.13	7.13	7.13	7.09	6.58	7.11
Electrical Conductivity	µS/cm	3290	3140	2950	2720	2720	2700	4800	4840	3770
Total Suspended Solids	mg/L	10	13	8	10	12	8	65	8	12
Aluminium	mg/L	0.11	0.35	0.06	0.04	0.32	0.02	0.11	0.07	0.12
Chromium (VI)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.01	<0.01
Copper	mg/L	0.001	0.002	0.001	<0.001	<0.001	<0.001	0.003	0.002	0.002
Zinc	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.008	<0.005	<0.005
Total Phosphorous	mg/L	0.12	0.14	0.11	0.1	0.13	0.13	0.14	0.1	0.13
Total Nitrogen	mg/L	1.1	1.61	1.3	1.1	1.6	1.6	1.2	0.8	1.1
Ammonia	mg/L	0.01	0.06	0.07	<0.01	<0.01	0.02	0.01	0.04	0.01

Table 16: February Surface Water Monitoring Results at Receiving Waterways at SBT 10 (AEC)

Analyte		SBT-10U	SBT-10A	SBT-10D	SBT-10U	SBT-10A	SBT-10D	SBT-10U	SBT-10A	SBT-10D
	Post Rain Event	No			No			No		
	Unit	14/02/2023			21/02/2023			28/02/2023		
pH	pH	8.12	8.11	8.12	7.25	7.25	7.23	7.11	7.16	7.16
Electrical Conductivity	µS/cm	1060	1300	1220	1250	1250	1240	2140	2110	2110
Total Suspended Solids	mg/L	6	<5	<5	6	<5	5	7	8	8
Aluminium	mg/L	0.46	0.46	0.42	0.03	0.02	0.03	0.04	0.04	0.03
Chromium (VI)	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.01	<0.01
Copper	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005
Total Phosphorous	mg/L	0.05	0.05	0.07	0.05	0.06	0.04	0.04	0.02	0.14
Total Nitrogen	mg/L	0.74	0.58	0.87	0.61	0.61	0.6	0.5	0.5	1.9
Ammonia	mg/L	0.07	0.06	0.07	0.03	0.03	0.03	0.04	0.04	0.03