



MECHANICAL BIOLOGICAL  
TREATMENT FACILITY

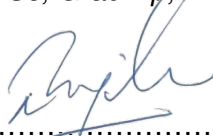


# Annual Environmental Management Report 2016-2017

*Woodlawn Mechanical Biological Treatment Facility*

January 2018

## Quality Information

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**DEFINITIONS/ABBREVIATIONS**

<b>AEMR</b>	Annual Environmental Management Report
<b>ALS</b>	Australian Laboratory Services Pty Ltd
<b>CEMP</b>	Construction Environmental Management Plan
<b>DPE</b>	Department of Planning and Environment
<b>EA</b>	Environmental Assessment
<b>EMP</b>	Environment Management Plan
<b>EP&amp;A</b>	Environmental Planning and Assessment (Act and Regulations)
<b>EPA</b>	NSW Environment Protection Authority
<b>EPL</b>	Environment Protection Licence
<b>E2W</b>	Earth2Water Pty Ltd
<b>MSW</b>	Mixed Solid Waste
<b>OEMP</b>	Operational Environmental Management Plan
<b>The Consent</b>	PA 06-0239
<b>The Bioreactor</b>	Woodlawn Bioreactor
<b>The Facility</b>	Woodlawn Mechanical Biological Treatment Facility
<b>TPA</b>	Tonnes per annum
<b>Veolia</b>	Veolia Australia and New Zealand
<b>WHS</b>	Work Health and Safety (Act and Regulation)
<b>WRVCP</b>	Waste Receipt and Vehicle Control Plan
<b>WMBT</b>	Woodlawn Mechanical Biological Treatment Facility

## **EXECUTIVE SUMMARY**

This Annual Environmental Management Report (AEMR) is the second report prepared to detail the environmental performance of the Woodlawn Mechanical Biological Treatment Plant Facility (the Facility), owned and operated by Veolia Australia and New Zealand (Veolia). The AEMR covers the period of 7 September 2016 to 6 November 2017 (this reporting period).

Veolia has prepared this AEMR in accordance with Schedule 4, Condition 5 of Project Approval PA 06\_0239 (the Consent), as well as relevant legislative requirements and industry best practices (refer **Section 1**). In addition to the Consent, an Environment Protection Licence (EPL) 20476 regulates the operational activities conducted at the Facility.

In this reporting period, the construction phase of the Facility was completed between 1 October 2015 – 7 March 2017, transitioning to the commissioning phase on 8 March 2017, followed by full operations commencing on 1 July 2017 (refer **Section 2**).

The AEMR provides a summary of environmental monitoring conducted at the Facility during this reporting period (refer **Section 3**). There were no non-compliances identified against the conditions of the Consent (the Consent Conditions) and no complaints received during this reporting period (refer **Section 4**).

# Section 1

*Introduction*

## **SECTION 1 INTRODUCTION**

### **1.1 Site Overview**

Veolia Australia and New Zealand (Veolia) own and operate the Woodlawn Mechanical Biological Treatment facility (the Facility), located at 619 Collector Road, Tarago, within the Southern Highlands of NSW.

The term mechanical biological treatment refers to several combinations of a hybrid process that combines mechanical techniques (used to sort mixed waste with potential recovery of inert recyclable material) and biological techniques (to stabilise the organic fraction). This type of technology to be used at the Facility is a composting process to treat the residual fraction of municipal, commercial and industrial solid waste (MSW) received from councils (or commercial/industrial customers) opting to utilise this waste management option over landfilling.

The construction stage of the Facility took place between 1 October 2015 – 7 March 2017, followed by a wet commissioning period from 8 March 2017, before the Facility commenced full operations in July 2017.

Stage 1 of the Facility has been constructed with a capacity to process 184,000 tonnes per annum (TPA), including 144,000 TPA of mixed waste and 40,000 TPA of garden waste. The Facility includes the following infrastructure:

- An access road for waste trucks;
- Car parking, weighbridge and amenities;
- Reception building and associated infrastructure;
- Biological Rotating System (BRS) drums;
- Refining building;
- Organic buffer storage area;
- Fermentation building; and
- Compost storage area.

A Site Layout Plan is provided in **Appendix A**.

Containerised waste is received from the Sydney Metropolitan Area (SMA), via rail, and unloaded onto road trucks for transport to the Facility, where mixed waste organic outputs (herein referred to as compost) are produced. The waste collected from the SMA is containerised at two transfer stations owned and operated by Veolia (namely the Banksmeadow and Clyde Transfer Terminals).

Residual material from the MBT process is deposited in the Woodlawn Bioreactor (Bioreactor), a landfill, located adjacent to the Facility. The compost produced is intended to be applied for remediation of land disturbed from former mining activities undertaken around the Bioreactor. Any recyclable materials recovered are taken offsite to an appropriate facility.

## 1.2 Legislative Requirements

The main legislative instruments governing the environmental performance and activities undertaken at the Facility include the EP&A Act regulated by the Department of Planning and Environment (DPE), and the *Protection of the Environment Operations Act 1997* (POEO Act) regulated by the Environment Protection Authority (EPA), as well as their respective associated regulations.

The Consent and EPL, issued by these regulatory authorities contain conditions stipulating the compliance requirements for the Facility. The Consent Condition relevant to the preparation of this AEMR is provided in **Table 1-1** below.

**Table 1-1 - Consent Conditions for the preparation of this AEMR**

Condition	Requirement
<b>SCHEDULE 4 – REPORTING</b>	
<b>Annual Reporting</b>	
5	Every year from the date of this approval, unless the Director-General agrees otherwise, the Proponent shall submit an AEMR to the Director-General and relevant agencies. The AEMR shall: <ol style="list-style-type: none"> <li>a) identify the standards and performance measures that apply to the development;</li> <li>b) include a summary of the complaints received during the past year, and compare this to the complaints received in previous years;</li> <li>c) include a summary of the monitoring results for the development during the past year;</li> <li>d) include an analysis of these monitoring results against the relevant:               <ul style="list-style-type: none"> <li>• Impact assessment criteria;</li> <li>• Monitoring results from previous years; and</li> <li>• Predictions in the EIS;</li> </ul> </li> <li>e) identify any trends in the monitoring results over the life of the development;</li> <li>f) identify any non-compliance during the previous year; and</li> <li>(a) describe what actions were, or are being taken to ensure compliance.</li> </ol>

### **1.3 Responsibilities**

- Environmental monitoring for the Facility was undertaken during this reporting period as by Woodlawn site staff as follows:
  - James Easterbrook (Woodlawn Environmental Officer) – during the construction stage until December 2016;
  - Christian Chang (MBT Process Engineer) – during the construction and operational stages; and
  - Harneet Puarr (Woodlawn Environmental Officer) – during the operational stage.
- Analyses of samples were performed at Australian Laboratory Services Pty Ltd (ALS), which is a NATA accredited laboratory.
- An independent noise audit was conducted by SLR Consulting Australia Pty Ltd (SLR) in October 2017. The audit team associated with this noise assessment included Mark Blake and John Sleeman. The audit team was approved by the DPE, in accordance with Schedule 3, Condition 28 of the Consent.

# Section 2

## *Facility Development Overview*

## **SECTION 2 FACILITY DEVELOPMENT OVERVIEW**

### **2.1 Approvals**

Project approval (PA 06\_0239) for the Facility was granted by the DPE, on 6 November 2007, for the development, construction and operation of a mixed waste organic outputs producing facility with a limit of 240,000 TPA of mixed waste and 40,000 TPA of garden waste.

Stage 1 of the Facility has been constructed with a capacity to process 184,000 TPA, including 144,000 TPA of mixed waste and 40,000 TPA of garden waste.

An Environment Protection Licence (EPL) 20476 was issued by the NSW EPA on 22 December 2014 to permit construction and was subsequently modified to regulate the operational activities conducted at the Facility.

### **2.2 Construction Stage**

Veolia prepared a Construction Environmental Management Plan (CEMP) to satisfy regulatory requirements and provide control measures for key environmental issues for the Facility during the construction phase.

The CEMP was approved by the DPE on 8 August 2014 and detailed the management and control measures to be implemented by the Principal Contractor to manage the environmental performance. The document focused on water quality, waste, traffic, air quality, noise, landscape, vegetation, and site contamination management.

Lipman Pty Ltd (Lipman) was engaged as the Principal Contractor Facility and were responsible for implementing the management system for environmental performance for construction activities between 1 October 2015 – 7 March 2017. No non-compliances with the Consent Conditions occurred during the construction stage of this report period.

### **2.3 Operation Stage**

Veolia prepared the Operational Environmental Management Plan (OEMP) which was approved by the DPE on 24 January 2017. The OEMP is the working environmental management tool for the operation of the Facility, concentrating on management of soil, leachate, water quality, waste, air quality, and emergency response during the operational stage and details controls and monitoring criteria to manage the environmental performance during the operational stage.

No non-compliances with the Consent Conditions occurred during the operational stage of this reporting period.

In accordance with Condition 5 of Schedule 4 of the Consent, this AEMR includes a review of the monitoring results and complaint records, discussion on trends in monitoring data in relation to the environmental performance of the Facility against performance criteria and statutory requirements, which are provided in **Section 3**.

# Section 3

*Environmental Monitoring and Management*

## SECTION 3 ENVIRONMENTAL MONITORING AND MANAGEMENT

### 3.1 Monitoring Requirements

This section outlines both construction and operational monitoring requirements governing the environmental performance and activities undertaken at the Facility.

Monitoring was undertaken throughout the reporting period in accordance with the Environmental Monitoring Schedules/Programs as proposed within the CEMP and OEMP respectively.

In this reporting period, construction monitoring was conducted between 6 September 2016 – 7 March 2017. Operational monitoring commenced 8 March 2017.

Environmental Monitoring Schedules/Programs provide details on all monitoring requirements of the Consent, EPL and other appropriate regulations to measure and assess the continuing suitability, adequacy and effectiveness of on-site environmental management measures.

**Tables 3-1** and **3-2** summarises the environmental monitoring conducted at the Terminal during its construction and operation. Routine inspections and housekeeping checks were also undertaken during this reporting period to ensure the designated environmental controls were effective.

During the construction stage, the environmental monitoring results showed that the construction of the Facility did not cause an increase in dust levels or surface water pollutants to off-site receivers. A summary of monthly monitoring results for the construction period are provided in Appendix B.

**Table 3-1 Construction Monitoring Requirements**

Condition Ref	Type of Monitoring	Frequency	Commentary
Schedule 3, Condition 29	Meteorological monitoring	Continuous	Ongoing, transitioned into operational phase as part of site housekeeping (refer Table 3.2)
Schedule 3, Condition 23 & 24 EPL Condition M2.2	Depositional Dust Monitoring	Monthly	Ongoing, transitioned into operational phase as part of air quality monitoring (refer Table 3-2)
Schedule 3, Condition 25 and 26	Construction & Traffic Noise Monitoring	As required	Not triggered as no noise complaints were received

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Schedule 3, Condition 20  EPL Condition M2.3	Surface Water Monitoring	Quarterly	Ongoing, transitioned into operational phase as part of water quality monitoring (refer Table 3-2)
EPL Condition L2.4	Surface water discharge quality monitoring	Daily during any discharge	Ongoing, transitioned into operational phase as part of water quality monitoring (refer Table 3-2)

**Table 3-2 Operational Monitoring Requirements**

Condition Ref	Type of Monitoring	Frequency	Commentary
Schedule 3, Condition 29	Meteorological monitoring	Continuous	Ongoing basis
Schedule 3, Condition 23 & 24  EPL Condition M2.2	Depositional Dust Monitoring	Monthly	Ongoing basis
Schedule 3, Condition 25 & 26	Operational noise monitoring	As required	Condition satisfied, monitoring conducted: 2 – 3 October 2017
Schedule 3, Condition 20  EPL Condition M2.3	Surface Water Monitoring	Quarterly	Ongoing basis
EPL Condition L2.4	Discharge Monitoring	Daily during any discharge	Ongoing basis
Schedule 3, Condition 20  EPL Condition M2.3	Groundwater Quality Monitoring	Quarterly	Ongoing basis
Schedule 3, Condition 20  EPL Condition M2.3	Leachate Monitoring	Six monthly	Ongoing basis
EPL Condition O5.3	Leachate Level	Weekly or as required	Ongoing basis
Schedule 3, Condition 6  EPL Condition	Waste volume monitoring	Daily	Ongoing basis

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L3.1			
Schedule 3, Condition 9	Site Inspection and Housekeeping	Weekly	Ongoing basis
Schedule 3, Condition 10	Pest and Vermin Checks	Every two months	Ongoing basis

### 3.1.1 MBT Facility Monitoring Points

The monitoring locations selected are reflected in EPL 20476. The monitoring type, sampling location, frequency and EPL ID for each of these licensed points are detailed in **Table 3-3** below.

**Table 3-3 - Details of MBT Licensed Monitoring Points**

Monitoring Type	Sampling Location	Frequency	EPA Monitoring Point ID No.
<u>Meteorology</u>	Meteorological station located within Woodlawn Ecoprecinct	Continuous	10
<u>Air Quality</u>	Residential Receiver – Pylara	Monthly	4
	Background receiver – Woodlawn Eco Project – West Void	Monthly	6
	Background receiver – Woodlawn MBT Facility – Lot 69	Monthly	7
<u>Surface Water</u>	Site 115 – Allianoyonyige Creek	Quarterly	1
<u>Discharge Monitoring</u>	Site 140 – Discharge Point	Daily, during any discharge	8
<u>Groundwater Monitoring</u>	MB32 - Immediately down gradient of leachate aeration dam	Quarterly	11
<u>Leachate Monitoring</u>	Leachate aeration dam	Every 6 months	12
<u>Noise Monitoring</u>	Residential receiver – Torokina	As required	2
	Residential receiver – Willeroo	As required	3

Monitoring data collected from the points described in **Table 3-3** have been tabulated and provided within the following sections.

### 3.2 Meteorology

A meteorological station, installed at the Eco Project Site, is utilised by the Facility to obtain continuous ambient weather conditions. The meteorological station was operating during the construction phase of this reporting period and will continue to operate while operations occur. The station allows sampling and analysis of the parameters specified in **Table 3-4** below, along with the standards and statutory requirements to collect and record this data.

During the reporting period, servicing and calibration of sensors was completed on a quarterly basis to ensure accuracy of data was maintained.

**Table 3-4 - Meteorological Data Parameters and Performance Measures**

Parameter	Performance Measure	Standards	Statutory Requirement
Wind Direction at 10 metres	Data correlated with other environmental monitoring results for Facility operations and complaint resolution	Am-2 & AM-4	Schedule 3, Condition 29  EPL Condition M4.1
Wind Speed at 10 metres		AM-2 & AM-4	
Sigma theta		AM-2 & AM-4	
Temperature at 10 metres		AM-4	
Temperature at 2 metres		AM-4	
Total Solar Radiation		AM-4	
Rainfall		AM-4	

### 3.3 Air Quality

Air quality monitoring, pertaining to odour and dust emissions, was undertaken in accordance with the Consent to determine whether activities conducted at the facility impacted on ambient air quality. Further details regarding air quality monitoring and management practices during the construction and operation of the facility are provided in the following sections.

#### 3.3.1 Dust Monitoring

Ongoing dust monitoring is carried out to monitor the dust deposition impacts of the project on the surrounding area. The following assessment criteria was used as per Schedule 3 Condition 23 of the Development Consent.

Table 3-5- Dust Monitoring Parameters and Performance Measures

Parameter	Performance Measure	Standards	Statutory Requirement
Total suspended particulate (TSP) matter	90µg/m <sup>3</sup>	Approved methods for sampling and analysis of air pollutants in New South Wales (EPA)	Schedule 3, Condition 23
Particulate matter < 10µm (PM10)	30µg/m <sup>3</sup>		
Maximum increase in Deposited Dust Level	2g/m <sup>2</sup> /month		
Deposited Dust	4g/m <sup>2</sup> /month		

Note: Deposited Dust is assessed as insoluble solids as defined by Standards Australia, 1991, AS/NZS 3580.10.1-2003: Methods for Sampling and Analysis of Ambient Air – Determination of Particulates – Deposited Matter – Gravimetric Method.

### Construction Phase

Results from the Environmental Assessment (EA) modelling of the Facility construction indicated that predicted particulate matter and depositional dust impacts from construction phase would be below the air quality goals for each parameter at residential receivers, showing a compliance with the regulatory requirements. Monitoring of PM10 and TSP is not an EPL requirement and would be monitored as required.

In accordance with the approved Monitoring Schedule in the CEMP and EPL conditions, monthly deposited dust samples were collected at two locations on site, as well as at the Pylara Farm, to assess the background dust levels and subsequently observe any changes that may occur as a result of the construction activities.

Depositional dust levels (as insoluble solids) at all three monitoring points (4, 6 and 7) generally ranged between 0.6 and 3.2 g/m<sup>2</sup>/month, with exception to dust levels recorded for Point 4 in January 2017 which recorded levels of 4.7 g/m<sup>2</sup>/month which was above the depositional dust limit.. Given that for the corresponding month there were no similar levels recorded at the dust gauges (Point 6 and 7) located within the proximity of the MBT facility, it can be inferred that this dust emission was not as a result of the MBT facility activities and can be treated as an outlier. Veolia infer that this result is due to activities such as mowing and/or recreational campfires in the immediate vicinity by visiting guests. Veolia proposed to move the dust gauge to a location approximately 100 metres from its current location.

No significant trends for the results of depositional dust monitoring were identified.

During this reporting period no dust complaints were received at the site.

**Table 3-6 - Deposited Dust (g/m<sup>2</sup>/mth) Monitoring Results for Points 4, 6 & 7**

Monitoring Location	Point 4 (Pylara)		Point 6 (West Void)		Point 7 (WMBT – Lot 69)	
	Total Solids	Insoluble Solids	Total Solids	Insoluble Solids	Total Solids	Insoluble Solids
Month						
Oct 2016	3.2	3.2	2	2	0.6	0.6
Nov 2016	2.8	2.6	2.5	2.2	1.2	1.2
Dec 2016	2.9	1.7	3.4	1.1	1	1
Jan 2017	5.1	4.7	2.7	2.3	0.6	0.6
Feb 2017	1.8	1.1	2.4	2	0.8	0.8

### Operational Phase

As part of the EA, a comprehensive air quality (dust and odour) and greenhouse gas impact assessment was undertaken for the Facility to determine the potential impacts of dust, suspended particulate matter, odour and greenhouse gas emissions resulting from operations.

The modelling results predicted annual average PM10 concentrations were predicted to easily meet the EPA criterion of 30 µg/m<sup>3</sup> when considering all sources during operation, with the MBT Facility itself providing a minor contribution of up to 1.6 µg/m<sup>3</sup>. Annual average TSP concentrations were also predicted to easily meet the EPA criterion of 90µg/m<sup>3</sup> during the operation of the Facility. Operations will contribute up to 3.9 µg/m<sup>3</sup> at any modelled receptor.

In accordance with the approved Monitoring Program in the OEMP, deposited dust monitoring continued to be conducted on a monthly basis at the three monitoring locations (Point 4, 6 and 7).

During the last reporting period, depositional dust levels (as insoluble solids) at all three monitoring points generally ranged between <0.2 and 4 g/m<sup>2</sup>/month and were all within the depositional dust criteria. During this reporting period no dust complaints were received at the site.

**Table 3-7 - Depositional Dust (g/m<sup>2</sup>/mth) Monitoring Results for Points 4,6 & 7**

Monitoring Location	Point 4 (Pylara)		Point 6 (West Void)		Point 7 (WMBT – Lot 69)	
	Total Solids	Insoluble Solids	Total Solids	Insoluble Solids	Total Solids	Insoluble Solids
Month						
Mar 2017	4.1	3.9	1.3	0.9	0.4	0.4

Apr 2017	0.09	0.09	0.9	0.9	0.3	0.3
May 2017	0.8	0.8	1.9	0.6	<0.2	<0.2
June 2017	<0.2	<0.2	0.4	0.4	<0.2	<0.2
July 2017	2.4	2.4	0.5	0.5	<0.2	<0.2
Aug 2017	8.6	4	1.5	0.5	0.2	0.2
Sep 2017	2.1	2.1	0.8	0.8	0.4	0.4
Oct 2017	1	1	3.4	3	0.5	0.5

### 3.3.2 Odour

#### Operational Phase

The air quality impact assessment (AIA) prepared by SLR, predicted that MBT Facility operations would comply with relevant air quality goals and are not expected to generate offensive or nuisance odours at nearby sensitive receivers.

The adopted odour criterion of 6 OU was predicted to be achieved at all receptors with the exception of the TriAusMin (now Heron) administration building, which was predicted to experience a 99th percentile odour concentration of 8.5 OU. This concentration was predicted to be dominated by the existing source of the Bioreactor, rather than the operation of the Facility, which was predicted to result in a 99th percentile concentration of 1.7 OU when modelled alone.

**Table 3-8 - Odour Emission Performance Criteria**

Parameter	Performance Measure	Standards	Statutory Requirement
Odour Emissions	6 OU	German Standard VDI 3940 'Determination of Odorants in Ambient Air by Field Inspections'	OEMP

The management of odour emissions from each of the proposed processing stages is maintained by the use of biofilters. Biofilters are pollution control mechanisms which use living material to biologically degrade and filter pollutants which may cause odours. These pollutants are absorbed into the biofilter material whereby it is broken down by microorganisms. Two biofilter odour control systems (OCS) are located adjacent to the processing areas at the Site.

No odour complaints were received in this reporting period.

### 3.4 Water Monitoring

#### 3.4.1 Surface Water Monitoring

Quarterly surface water monitoring is carried out to monitor any potential surface water impacts of the project on the surrounding area. Details of monitoring parameters and provided in **Table 3-9** as per EPL Conditions.

**Table 3-9 - Surface Water Monitoring Parameters and Performance Measures**

Parameters	Performance Measure	Standards	Statutory Requirement
Ammonia (NH <sub>3</sub> ), Biochemical Oxygen Demand (BOD), Dissolved Oxygen (DO) Electrical Conductivity (EC), pH, Potassium, Redox Potential, Total Dissolved Solids (TDS), Total Organic Carbon (TOC)	Monitoring trends and data analysis	Approved Methods for the Sampling and Analysis of Water Pollutants in New South Wales	EPL Condition M2.3

Baseline data for surface water has been obtained from historical water quality monitoring undertaken for monitoring location Site 115 - Allianyonyiga Creek between September 2006 and September 2016. Baseline data shows historical pollutant concentration trends as outlined in **Table 3-10**.

**Table 3-10 - Surface Water Baseline Data**

Pollutant	Site 115 - Allianyonyige Creek
	Baseline
NH <sub>3</sub>	0.1 mg/L
BOD	2.94mg/L
DO	8.5mg/L
EC	240 - 4360 uS/cm
pH	6.7 - 8.6
Potassium	3.09mg/L
Redox Potential	119mV
TDS	250 - 3820mg/L
TOC	14.67mg/L
TSS	258mg/L

Construction Phase

Surface water monitoring as per **Table 3-9**, was conducted at the facility to determine whether surface water flowing offsite could be contaminated as a result of construction activities. One monitoring round was conducted on 26 September 2016 (refer to **Table 3-11** for results). Ammonia and Biological Oxygen Demand (BOD) were detected below their limits of reporting (LOR) of <0.1 and <2mg/L respectively. All parameters monitored remained relatively consistent with or below to historical concentrations.

**Table 3-11 - Surface Water Monitoring Results for Point 1 during Construction**

Pollutant	Site 115 - Allianyonyige Creek
	26/09/2016
NH3	<0.1mg/L
BOD	<2mg/L
DO	9.49mg/L
EC	1910µS/cm
pH	8.16
Potassium	1mg/L
Redox Potential	238mV
TDS	1310mg/L
TOC	17mg/L
TSS	9mg/L

Operational Phase

Surface water monitoring was conducted at the WMBT Facility as per **Table 3-9** to determine whether surface water flowing offsite could be contaminated as a result of composting operations.

Only one monitoring round was conducted in the operational phase of the reporting period as a result of low frequency and volume of rainfall (Refer to

**Table 3-12** for results). All parameters were consistent or lower than baseline averages. Similar to historical trends, Ammonia and Biological Oxygen Demand (BOD) were detected below their limits of reporting (LOR) of <0.1 and <2mg/L respectively.

**Table 3-12 - Surface Water Monitoring Results for Point 1 during Operations**

Pollutant	Site 115 - Allianyonyige Creek
	8/08/2017
NH3	<0.1mg/L
BOD	<2mg/L
DO	10.75mg/L
EC	3720µS/cm
pH	7.67
Potassium	1.3mg/L
Redox Potential	286mV
TDS	2600mg/L
TOC	14mg/L
TSS	4mg/L

### 3.4.2 Discharge Monitoring

Surface water discharge monitoring is conducted at the facility to determine whether surface water flowing offsite could be contaminated as a result of construction or operational activities. The results of discharge monitoring are assessed against discharge limits stipulated within the Consent and EPL 20476 which are described in **Table 3-13**.

**Table 3-13 - Discharge Parameters and Performance Measures**

Parameter	Performance Measure	Standards	Statutory Requirements
pH	6.5 – 8.5	Approved Methods for the Sampling and Analysis of Water Pollutants in New South Wales	EPL Condition L2.4
Total Suspended Solids (TSS)	50 mg/L		

#### Construction Phase

There was a low frequency and volume of rainfall events during the construction and operational stage of the last reporting period, which resulted in no discharge events occurring at Site 140.

#### Operational Phase

Condition 19 of the Consent states the stormwater retention pond must capture and store all stormwater runoff generated at the premises during a 24-hour duration 1-in-100-year Average Recurrence Interval (ARI) rainfall event. Following the commencement of operations the Facility must ensure it maintains a closed water management system, which ensures no discharge to the downstream environment.

Since operations commenced in March 2017, no discharge events were recorded at Site 140 indicating compliance with this condition.

**3.4.3 Groundwater Monitoring**

Groundwater monitoring tests for specific chemicals of concern including ammonia, potassium and total organic carbon (TOC) as key indicators for leachate migration as required in the EPL conditions (See Table 3-14).

**Table 3-14 Groundwater Monitoring Parameters and Performance Criteria**

Parameters	Performance Measure	Standards	Statutory Requirement
Ammonia (NH <sub>3</sub> ), Electrical Conductivity (EC), pH, Potassium, Total Dissolved Solids (TDS), Total Organic Carbon (TOC), Lead, Sulfate, Zinc	Monitoring trends and data analysis	Approved Methods for the Sampling and Analysis of Water Pollutants in New South Wales	EPL Condition L2.4

Construction Phase

No groundwater monitoring was required during construction as no potential risk to groundwater quality was identified as part of the construction works.

Operational Phase

The new ground water monitoring well was installed on 25 January 2017, immediately down gradient of the leachate aeration pond (please refer to the **Appendix A** for monitoring location) to enable the monitoring and detection of any leachate migration from the dam to the underlying groundwater.

Following the installation of the monitoring well, one baseline monitoring round was conducted in February 2017 to classify the general characteristics of groundwater encountered at the site prior to operations, as stipulated in the EPL. Since the commencement of composting operations, two quarterly monitoring rounds were undertaken where all results were consistent with baseline quality results. All groundwater results can be found in **Appendix C**.

### 3.4.4 Leachate Monitoring

#### Operational Phase

To determine the characterisation of the leachate generating from the composting operations, a baseline needs to be established. As per the EPL requirements, one round of leachate monitoring was undertaken in May 2017. Further monitoring data collected over the next reporting periods will contribute to understanding this profile. The monitoring results from this period are provided in **Appendix D**.

**Table 3-15 Leachate Monitoring Parameters and Performance Criteria**

Parameters	Performance Measure	Standards	Statutory Requirement
Alkalinity (as calcium carbonate), Aluminium, Ammonia, Arsenic, Barium, Benzene, Cadmium, Calcium, Chloride, Chromium (hexavalent), Chromium (total), Cobalt, Copper, Electrical Conductivity, Ethyl benzene, Fluoride, Iron, Lead, Magnesium, Manganese, Mercury, Nitrate, Nitrite, Organochlorine Pesticides, Organophosphate Pesticides, pH, Phosphorus (total), Polycyclic aromatic hydrocarbons, Potassium, Sodium, Sulfate, Toluene, Total Dissolved Solids (TDS), Total Organic Carbon (TOC), Total petroleum hydrocarbons, Total Phenolics, Total suspended solids (TSS), Xylene, Zinc	Monitoring trends and data analysis	Approved Methods for the Sampling and Analysis of Water Pollutants in New South Wales	EPL Condition L2.4

In addition to chemical testing, the level of the water in the leachate aeration pond is also visually monitored on a weekly basis and after every rainfall event to ensure the freeboard is not exceeded as per Condition O5.3 of the EPL.

### 3.5 Noise Monitoring

Construction and operational activities at the Facility were restricted within the approved operating/construction hours described in **Table 3-16** as per Schedule 2, Condition 27 of the Consent.

**Table 3-16 - Approved Hours of Construction & Operation**

Activity	Day	Hours
Construction Hours	Monday – Friday	7:00am-6:00pm
	Saturday	7:00am-1:00pm
	Sunday & Public Holidays	Nil
Operation Hours	Monday – Saturday	6:00am – 10:00pm
Emergency Hours	Monday – Sunday	Anytime

Note: Operation of BRS Drums and associated infrastructure is permitted over 24 hours.

Noise limits are stipulated in the Consent to ensure the site does not generate nuisance noise emissions as a result of construction or operational activities.

**Table 3-17 - Noise Impact Assessment Criteria dB(A)**

Parameter	Performance Measure	Standards	Statutory Requirement
Residences on privately owned land (during construction)	Laeq (15min) = 40dB	NSW Industrial Noise Policy (EPA)	Schedule 3, Condition 25
Residences on privately owned land (during operations)	Laeq (15min) = 35 dB		
Traffic Noise on privately owned land	Laeq (1 hour) = 60dB	Environmental Criteria for Road Traffic Noise (DECC)	Schedule 3, Condition 26

#### Construction Phase

No exceedance in noise impact above background levels from construction noise emissions was anticipated as per the EA findings. During construction, noise control measures were followed as outlined in the Construction Noise Management Plan. Construction activities at the site were also restricted within the approved operating/construction hours described in **Table 3-16** as per Schedule 2, Condition 27 of the Consent.

No noise monitoring was undertaken during the construction phase as no noise complaints were received.

### Operational Phase

SLR Consulting was engaged to conduct operational noise monitoring to conduct a noise audit of the Woodlawn Mechanical Biological Treatment Facility, to determine if any impact of operational activities on nearby receivers occurs in regards to the emission of nuisance noise.

#### **Operational Noise**

Ambient noise measurements were conducted at the two locations as identified as the nearest residences on privately owned land, as specified in Condition 25 of the Consent. The results of the operator-attended measurements confirm the noise impact assessment criteria (Refer to **Table 3-17**) is complied with at the nearest residences on privately-owned land, with LAeq(15minute) noise levels recorded below 35 dBA at both locations. The operator-attended measurements also recorded levels higher than LAeq(15minute) 35 dBA, and in these instances the ambient noise environment was due to natural sounds such as birds, insects and frogs.

#### **Traffic Noise**

Traffic noise levels were calculated at the nearest residence to the road between the Crisps Creek Intermodal Terminal and Woodlawn MBT, for comparison with the Traffic Noise Impact Assessment Criteria specified in the approval. The results of the operator-attended measurements and calculation confirm the Project Approval (06\_0239) noise criteria is complied with at the nearest residence on privately-owned land.

A copy of the noise audit report was submitted to the DPE on the 6 December 2017. The performance of the Facility in managing potential noise emissions was also assessed on the receipt of any noise complaints. No noise complaints were received in this reporting period.

### **3.6 Waste Monitoring**

A Waste Receipt and Vehicle Control Plan (WRVCP) was prepared which details waste management infrastructure, system and procedures implemented during the operational phase of the Facility.

All waste received at the Facility was recorded in PWS (Paper-less Weighbridge System) system. PWS records vehicle registrations, the date and time of delivery, the gross and tare weight of the vehicle, as well as the waste type and source of the waste delivered to the site.

**3.6.1 Waste Acceptance and Screening**

Waste was screened in accordance with the NSW Resource Recovery Screening and Recording of Waste Procedure at the Clyde Transfer Terminal and Banksmeadow Transfer Terminal sites before the loading of waste into containers for the transportation to the Facility. If any waste is detected that is not acceptable through the screening process, it is rejected and cannot be loaded into the containers.

Once the waste is received at the Facility, the operator of the grapple crane inspected the waste as it is discharged from the vehicle, to check for non-conforming waste. In the event that easily extractable, bulk recyclable waste was detected this waste was separated from the general waste stream and set aside for removal from the facility to another facility licensed to receive this type of waste for processing or recycling. This includes waste types identified as less desirable to processing operations. No records of non-conforming waste were recorded during this reporting period.

**3.6.2 Waste Volume Monitoring**

Schedule 3, Condition 2 of the Consent stipulates that the Facility must not receive or process more than 240,000 TPA of mixed waste and 40,000 TPA of garden waste. Under the Facility operations (Stage 1), the site is approved to accept and treat 184,000 TPA, which includes 144,000 TPA of mixed waste and 40,000 TPA of garden waste. The WRVCP details the Waste Monitoring Program used to monitor and record incoming waste at the Facility. The performance measures for the waste volumes are detailed in **Table 3-18**.

**Table 3-18 - Stage 1 Waste Parameters and Performance Measures**

Parameter	Performance Measure	Standards	Statutory Requirement
Mixed waste	280,000 TPA	NSW EPA Waste Classification Guidelines	Schedule 3, Condition 2
Garden waste	40,000 TPA		

Veolia utilised the data provided by PWS to track and monitor the amount of incoming waste transported by rail to Crisps Creek Intermodal Facility and transferred to the Facility. **Table 3-19** indicates that the Facility has remained within the annual waste limit stipulated within the Consent. Veolia shall continue to monitor incoming waste tonnages at the Facility for the following operational year.

**Table 3-19 - Incoming Waste Tonnages during Operations (8 Mar 2017 – 6 Nov 2017)**

Source	Waste Type	Total TPA
Banksmeadow Transfer Terminal	Mixed Waste	36,776
Clyde Transfer Terminal	Mixed Waste	13,803
	TOTAL	50,579

**Table 3-20 - Outgoing Waste Tonnages during Operations (8 Mar 2017 – 6 Nov 2017)**

Source	Waste Type	Total TPA
Woodlawn MBT	Mixed Waste - Non Putrescible	29,759
	Ferrous or Non Ferrous Metal	13
	Compost (plus process loss)	20,807
	TOTAL	50,579

### 3.7 Pests, Vermin and Litter Control

#### Operational Phase

Litter control for the Facility was carried out in accordance with Veolia's Housekeeping and Inspection Procedure which provides guidance on litter management on Veolia sites. Inspection was undertaken by the Facility Manager and/or operators daily to ensure the items on site specific inspection checklists are undertaken as part of the site's housekeeping requirements, which determines the effectiveness of the measures.

The potential for the spread of small insects, disease and weed seeds from the Facility will be limited through appropriate management techniques in the waste processing building and outdoor operations area. The composting organic material, which may contain insect eggs or larvae, weed seeds and spores, will be subject to temperatures in excess of 55 degrees for at least three days. This will ensure that potential pests and diseases within the waste stream are destroyed, and will thereby be prevented from spreading throughout the local area. The following table identifies the housekeeping undertaken at the Facility to manage pest, vermin and litter.

**Table 3-21 - Pest, Vermin and Litter Performance Measures**

<b>Parameter</b>	<b>Performance Measure</b>	<b>Standard</b>	<b>Statutory Requirement</b>
Litter Control	Visual Inspection	Veolia National Integrated Management System	Schedule 3, Condition 9
Vermin, Pest and Noxious Weed Management			Schedule 3, Condition 10

No pest and/or vermin complaints or management issues were reported during the operation of the Facility during the reporting period.

# Section 4

*Environmental Performance*

## **SECTION 4 ENVIRONMENTAL PERFORMANCE**

The environmental performance of the Facility is assessed through the results of environmental monitoring and internal inspections and any complaints received.

A discussion of improvement strategies are provided within this section.

### **4.1 Previous Non-Conformances and Findings**

In the previous (2015 - 2016) reporting period, there were no non-conformances with the conditions of Development Consent identified and no complaints received in this reporting period.

### **4.2 Current Non-Conformances and Corrective Actions**

There were no non-conformances with the Consent Conditions identified and no complaints received in this (2016 – 2017) reporting period. One improvement to the environmental management of the Facility was implemented during this reporting period, refer to Table 4-1 for details.

**Table 4-1 – Improvement Strategies during 2016-2017**

<b>Item No.</b>	<b>Improvement Strategy</b>	<b>Completed Action</b>
1.	Based on feedback from EPA, Veolia was required to incorporate a groundwater monitoring program at the WMBT site.	Earth2Water Pty Ltd (E2W) installed a new groundwater well on 25 January 2017, immediately down gradient of the leachate aeration pond to enable the monitoring and detection of any leachate migration.

### **4.3 Conclusion**

Based on a review of the Facility's environmental monitoring results, its environmental performance is positive. In addition to this, no complaints have been received. The Facility will continue to focus on optimising the performance of operations to ensure all requirements of the Consent and EPL are maintained.

## REFERENCES

1. NSW Environmental Protection Authority. (2006). *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
2. NSW Environmental Protection Authority. (2004). *Approved Methods for the Sampling and Analysis of Water Pollutants in New South Wales*.
3. Umwelt Environment Consulting. (2006). *Environmental Assessment: Woodlawn Expansion Project Volume 1 – Main Report*.
4. Veolia Environmental Services. (2013). *Environmental Assessment: Woodlawn Mechanical Biological Treatment Facility*.
5. Veolia Environmental Services. (2014). *Construction Environmental Management Plan*
6. Veolia Environmental Services (2016). *Mechanical Biological Treatment Facility Annual Environmental Monitoring Report*. Veolia. November 2016.
7. Veolia Environmental Services. (2017). *Operational Environmental Management Plan*

**APPENDICES****Appendix A - Site Plan**

**Appendix B – Construction Monitoring Summary Reports**

**Appendix C – Groundwater Quality Results**

**Appendix D – Leachate Quality Results**