

Cleanaway Pty Ltd



Odour Management Plan

Erskine Park, NSW

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Version 2.1

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OMP Revisions			
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LIST OF ABBREVIATIONS AND DEFINITIONS

Cleanaway	Cleanaway Pty Ltd
EBP	Environmental Business Partners
EPL	Environment Protection Licence
FAOA	Field Ambient Odour Assessment
FI-FO	first in and first out
May 2020 Report	Cleanaway Erskine Park Waste Transfer Station – Field Ambient Odour Assessment Survey Frequency Review & Future Odour Monitoring Program dated 27 May 2020
NSW EPA	New South Wales Environment Protection Authority
OER	odour emission rate, ou.m ³ /s
OMP	Odour Management Plan
OMS	odour management system
POEO Act	Protection of the Environment Operations Act 1997
RTS	the odour predictions in response to submissions prepared by SLR dated 24 February 2016
SCADA	supervisory control and data acquisition
SSD 7075	State Significant Development 7075
the Erskine Park Facility	Cleanaway Erskine Park Resource Management Facility - Waste Transfer Station located at 85-87 Quarry Road, Erskine Park, New South Wales
the O & M Manual	Operations & Maintenance Manual for Armatec Odour Scrubber dated June 2019
the Odour Audit Report	Cleanaway Pty Ltd Erskine Park Resource Management Facility – Waste Transfer Station Odour Audit Final Report dated 14 November 2019
тои	The Odour Unit
tpa	tonnes per annum
WTS	Waste Transfer Station



UNITS OF MEASUREMENT

km	kilometres
m	metres
m/s	metres per second
m/s	metres per second
m²	square metres
m ³	cubic metres
m³/hr	cubic metres per hour
m³/s	cubic metres per second
mL	millimetres
mm	millimetres
ORP	oxidation reduction potential
ou	odour units
Ра	pascals
	CHEMICAL NOMENCLATURE
СО	carbon monoxide
H ₂ S	hydrogen sulphide
NaOCI	sodium hypochlorite
NaOH	sodium hydroxide
NH ₃	ammonia



1 INTRODUCTION

The following document is the Odour Management Plan for the Cleanaway Pty Ltd (**Cleanaway**) Erskine Park Resource Management Facility - Waste Transfer Station (**WTS**) located at 85-87 Quarry Road, Erskine Park, New South Wales (the **Erskine Park Facility**).

1.1 RELEVANT BACKGROUND AND CONTEXT

The Erskine Park Facility operates under Environment Protection Licence (**EPL**) 20986. As part of the approval process, an odour audit was completed in March 2019 to validate the odour predictions generated in response to submissions prepared by an external contractor dated 24 February 2016 (the **RTS**). The requirement for the odour audit originated from *Condition B12* of the consent issued as part of the State Significant Development 7075 (**SSD 7075**). The odour audit is documented in a report completed by The Odour Unit (**TOU**) titled *Cleanaway Pty Ltd Erskine Park Resource Management Facility - Waste Transfer Station Odour Audit - Erskine Park, NSW - Final Report* dated 14 November 2019 (the **Odour Audit Report**).

1.2 PURPOSE OF THE OMP

The purpose of the OMP is to eliminate, prevent or minimise the potential for odour generation at the Erskine Park Facility through a hierarchy of controls, in the form of, but not limited to, engineered, administration and/or management practices. The OMP seeks to find a practical balance between maintaining the quality of process operations at the Erskine Park Facility and the ability to control odour emission generation and release.

1.3 OBJECTIVES AND SCOPE OF THE OMP

The OMP documents the operational management system for the Erskine Park Facility detailing:

- Minimise the release of odours to the environment during all meteorological conditions;
- Meet the New South Wales Environment Protection Authority (NSW EPA) requirement of managing odour impact beyond the boundary;
- Implement best management practice;
- Implement an effective program for the monitoring of odour emissions;
- Minimise impacts on the local community during operation;
- An outline of how the production and migration of odorous compounds is minimised, including design (where applicable) and operational practices;
- The monitoring and control protocols required to assist in the management of odour;
- A description of the odour management system (OMS) design and operation including:



- Containment and treatment concept,
- Operation,
- Collection system,
- Scrubber system, and
- Tri-stack System.
- A description of the OMS performance monitoring including:
 - Monitoring and controls protocols implemented to ensure optimum operation, and
 - o Independent OMS performance assessment.
- A description of the maintenance protocols for the existing OMS;
- An outline of the key staff and responsibilities with respect to odour management, including:
 - Branch Manager;
 - Shift Supervisor; and
 - OMS contractor.
- An outline of the reporting requirements with respect to odour;
- Odour complaints handling procedure;
- Integrate/link existing documentation with respect to odour to this OMP; and
- Recommended odour improvement strategy and status.

1.4 DOCUMENT CONTROL PROTOCOL

This is the <u>Version 2</u> of the OMP and reflects an update to Version 1 of the OMP originally completed by SLR Consulting Australia Pty Ltd dated June 2017. It is noted that Version 1 of the OMP was designed to satisfy *Condition B10 Odour Management Plan* of *Schedule C* of the development consent for SSD 7075. Where relevant, details from Version 1 completed by SLR Consulting Australia Pty Ltd have been imported into Version 2 – the contribution from Version 1 is duly acknowledged as part of the update to the OMP.

The OMP should be regarded as a 'live' manual that is changed as required, to reflect the current practices and odour controls prevalent at the Erskine Park Facility. All updates/modifications to the OMP should be recorded in the *Document Revisions* table on the second page of this document and approved by the Erskine Park Facility and TOU.



1.5 RELATED DOCUMENTATION

The following documents should be read in conjunction with the OMP for the Erskine Park Facility:

- The Odour Audit Report;
- The RTS; and
- Operations & Maintenance Manual for Armatec Odour Scrubber dated June 2019 (the **O & M Manual**). This is a restricted and commercially sensitive document. As such, relevant details have been extracted and included in the OMP where required.

1.6 Environment Protection Licence Conditions

The NSW EPA issues EPLs to the owners or operators of various industrial premises under the *Protection of the Environment Operations Act 1997* (**POEO Act**). The EPL conditions relate to pollution prevention and monitoring, and cleaner production through recycling and reuse and the implementation of best practice.

The operations being undertaken at the Erskine Park Facility are governed by EPL 20986 issued by the NSW EPA. A copy of the EPL can be obtained electronically from the following web address:

http://www.epa.nsw.gov.au/prpoeoapp/

1.6.1 Statement of OMP Obligations

Cleanaway will be responsible for ensuring that the operations at the Erskine Park Facility comply with the provisions and measures contained within this OMP.



2 THE ERSKINE PARK FACILITY

The WTS at the Erskine Park Facility was completed and commissioned in late-December 2018. A view of the WTS at the Erskine Park Facility is shown in **Photo 3.1**. The WTS is approved for 3,000 tonnes at any one time, with an overall design capacity of 300,000 tonnes per annum (**tpa**). The Erskine Park Facility has consent to operate twenty-four (24) a day, seven (7) days a week, with the majority of the truck movement typically occurring between 0700 hrs and 1700 hrs.

2.1 LOCALITY ANALYSIS

The WTS is located at 85- 87 Quarry Road, approximately 42 kilometres (**km**) west of Sydney Central Business District, in the local government area of the City of Penrith and is part of the Greater Western Sydney region. The WTS is located within the Erskine Park Industrial Precinct. Other industries also located in the Erskine Park Industrial Precinct include CSR Limited's glass processing plant, Sony DADC, BlueScope Steel, Koorong Bookstore, Hasbro, Ceva, and a Woolworths Liquor distribution centre. The adjacent land uses include a mix of farmland to the west, residential land to the north, and several schools to the south. The nearest residential premises are located along the western and northern boundaries of the Erskine Park Industrial Precinct. The locational context of the Erskine Park Facility is shown in **Figure 2.1**.



Figure 2.1 - An aerial map outlining the locational context of the Erskine Park Facility (**Map Source**: Six Maps, Access Date: 3 August 2023)

The topography is important as local atmospheric dispersion can be influenced by nighttime katabatic (downhill) drainage flows from elevated terrain or channelling effects in valleys or gullies around the WTS. The topography of the Erskine Park Facility is



relatively flat, sloping gently to the west, with an elevation of approximately 60 metres Australian Height Datum.

2.2 SENSITIVE RECEPTOR ANALYSIS

Figure 2.2 depicts the Erskine Park Industrial Precinct and identifies many of the nonresidential neighbours surrounding the Erskine Park Facility.



Figure 2.2 - Locational context of the Erskine Park Industrial Precinct relative the Erskine Park Facility

Furthermore, there are a number of residences and sensitive receivers are located in the area surrounding the Erskine Park Facility, which is illustrated in **Figure 2.3** and that includes the following features:

- The hatched areas show the location of residential areas;
- The yellow circles show the location of sensitive residential receptors scattered within the semi-rural areas surrounding the Erskine Park Facility; and
- The orange circles show the location of nearby schools and aged care centres.





Figure 2.3 - Sensitive receptor locations relative to the Erskine Park Facility



3 ODOUR MANAGEMENT SYSTEM

3.1 OMS DESIGN BASIS AND FEATURES

The design basis for the OMS at the Erskine Park Facility is as follows:

- 1. To be fit for purpose for the given design basis;
- 2. To run in an economical manner;
- 3. To be simple to operate, service and maintain when required;
- 4. Provide fall-back provisions when instrumentation is not available for controls;
- 5. To have high, reliable uptime with proper operation;
- 6. Built in a specific layout that allows additional scrubber capacity to be added in the future; and
- 7. With a split airflow between the scrubber and bypass at almost all times.

The key integrated odour management design features of the WTS are as follows:

- A modern weighbridge;
- Three fast-acting roller doors to facilitate truck movement in and out of the WTS (as shown in Photo 3.1);
- A motorised fresh make-up building louvre system that facilitates the action of Tri-stack System;
- Full containment and extraction of internal building air via a Tri-stack System (as shown in Photo 3.2);
- A scrubber system (as shown in Photo 3.3) capable of fully servicing the design airflow of one of the three (3) identical Tri-stack fan units;
- A process control room, consisting of a supervisory control and data acquisition (SCADA) system, responsible for the monitoring and control of the Tri-stack and scrubber systems;
- A glass breaking plant; and
- A truck loading area that is fully enclosed as part of the normal operation of the WTS building.





Photo 3.1 - A view of the WTS at the Erskine Park Facility facing west (4 April 2019)



Photo 3.2 – A view of the Tri-stack System at the Erskine Park Facility (9 April 2019)





Photo 3.3 – A view of the scrubber system at the Erskine Park Facility (9 April 2019)



3.1.1 Tri-stack System

The Tri-stack system is designed and supplied by Strobic Air Corporation. The principle of operation involves the extraction of building air emissions, either treated or untreated via the scrubber system, and atmospheric discharge at a very high exit velocity for enhanced vertical plume dispersion outcomes. Based on the design specification documented in the O & M Manual, the design exit velocity for each stack on the Tri-stack System is 42 m/s. Each stack has a vertical mounted axial flow fan capable of delivering a total design flow of approximately 18 m³/s, equivalent to 54 m³/s for the entire Tri-stack System. This is achieved via airflow drawn from the WTS building, by-pass dampers installed on the plenum chamber of the Tri-stack and engineered orifices designed into the stack structure. A visual demonstration of the Tri-stack System operation and design principle and specification is shown in **Figure 3.1**.



Figure 3.1 – Tri-stack system design as installed at the Erskine Park Facility

3.1.2 OMS Design, Supply & Install

As per Condition B10 (A) of the SSD7075, the OMP notes the following:

"One scrubber will be installed during construction of the WTS with an air flowrate capacity of 15 m³/s. Provision has been made in the design for up to two more units (15 m³/s each) to be installed in the future if required. After passing through



the odour treatment system, the scrubbed air will be ducted to roof height for discharge through the high plume dispersion stacks located on the roof of the building."

For this reason, a single scrubber system has been installed at the Erskine Park Facility, with provision for expansion in air treatment capacity should it be required in the future (refer to **Section 3.1.3** for details).

The overall OMS is managed by an external contractor (refer to Section 8.3).

3.1.3 Scrubber System

The adoption of scrubbing technology involves passing air through a water scrubbing process, often through a packed bed column, venturi channel or hollow vessel, resulting in the removal air containments by adsorption/diffusion gradients. The scrubbing liquor can be water or chemical-based (such as an acid, caustic and/or oxidising agent). It can also involve several scrubbing stages, typically in series, to target different air containments.

The Erskine Park Facility has installed a single, counter-flow, packed column chemical scrubber system, utilising water as the scrubbing liquor with capacity for chemical dosing (refer to **Section 3.1.3.2**). The single stage scrubber unit can treat the full design airflow of a single fan unit on the Tri-stack System (i.e., 15 m³/s). The performance specifications of the scrubber vessel at the Erskine Park Facility are outlined in **Figure 3.1**.

Parameter	Detail
Scrubber Model	SPT 140-120
Scrubber Dimensions	3.5m diameter with 3.0m deep bed
Design air flowrate (m³/s)	Up to 15 m³/s (54,000 m³/h)
Design liquid recirculation rate (m ³ /h)	~150
Scrubbing liquor	Caustic plus Hypochlorite
Inlet H ₂ S concentration	5 – 200ppm (assumed)
H₂S removal	90% for inlet H ₂ S < 5ppm
	99% for inlet H ₂ S > 5ppm

Figure 3.2 - Performance specification for the scrubber system at the Erskine Park Facility (Source: O & M Manual)

3.1.3.1 Modulation of Airflow to Scrubber

The scrubber vessel has a mist eliminator built into the top of the scrubber to remove mist and entrained moisture from the gas as it leaves the scrubber tower. The airflow to the scrubber is controlled by the open/shut dampers to isolate the scrubber, and the



modulating by-pass damper to balance flow between the by-pass and the scrubber on the way to the exhaust fans.

3.1.3.2 Scrubbing Liquor Management Protocol

The scrubbing liquor is water that can be dosed with caustic (to raise pH) and hypochlorite (an oxidiser) to maximise odour removal and/or to conduct a cleaning-inplace cycle (refer to **Section 3.1.3.4**). A blowdown stream sends a portion of the liquor to drain regularly to discharge neutralised contaminants and prevent the scrubber blocking from precipitated waste. The replacement water is fed into the scrubber to maintain its level. The liquor is recirculated through duty/standby pumps to spray nozzles at the top of the scrubber to keep the scrubber packing wet.

3.1.3.3 Scrubbing Liquor Monitoring Protocol

There are two sample lines that allow monitoring of pH, oxidation reduction potential (**ORP**) and conductivity in a dual validation configuration. ORP and pH are used to optimise dosing rates (if required), and conductivity is used to optimise blowdown. The blowdown liquor is monitored for flow, chlorine (if required), and temperature before discharge to drain.

3.1.3.4 Cleaning-In-Place

The scrubber system is chemically dosed with caustic (**NaOH**) and sodium hypochlorite (**NaOC**I) during a clean-in-place cycle. This ensures that the packed column remains in an optimal condition and mitigates the effects of fouling over time.

3.1.4 WTS Building

The principal method for the control of emissions from the WTS is containment. The WTS building is designed to operate under negative pressure, which is recognised as a key method to minimise fugitive emissions (i.e., building leakage). The WTS building features the following features to achieve this design function:

- The installation of fast-acting doors (refer to Section 3.1.4.1 for details) on the waste delivery doorways located on the eastern facade of the building and on the waste export doorways located on the lower level of the southern part of the building;
- An internal airflow extraction system located on the underside of the building ceiling. The extracted airflow flows to the scrubber vessel and/or Tri-Stack Fan System;
- The WTS building is equipped with variable speed fans, which are adjusted to achieve the required air extraction rate and management day-time and night-time conditions (refer to Section 3.1.6); and
- Motorised make-up air louvres, designed to modulate the airflow based on the number of Tri-Stack fan units in operation.

Whilst not related to odour management, the OMP notes that there is a continuous carbon monoxide (**CO**) monitoring system located inside the WTS building installed in accordance with Australian Standards and Workcover requirements to monitor CO concentrations. The ventilation system airflow rate is maintained to ensure that CO



concentrations do not exceed occupational exposure criteria due to vehicle exhaust emissions within the WTS building.

3.1.4.1 Fast-acting Roller Door System

The WTS is fitted with three (3) fast-acting roller doors (refer to **Photo 3.1**). During the Audit, the roller doors were seen to remain open for no longer than thirty (30) seconds before closing. If this time is exceeded, the motorised make-up air louvres on the WTS begin to close and remain closed until the roller door is closed. This is a feature designed to reduce fugitive emission release and maintain a high level of building air containment.

3.1.5 Motorised Make-up Air Louvre System

A total of fourteen (14) louvre units exists along with the eastern profile of the WTS building. An additional louvre is present close to ground level on the western section of the WTS building (i.e., near the truck loading area within the WTS building). These louvres are regulated based on the mode of operation (refer to **Section 3.1.6** for details).

3.1.6 OMS Mode of Operation

There are two operational modes for the OMS at the Erskine Park Facility, namely:

- Day-time operation (0830 hrs to 1630 hrs): Flow diverted to by-pass duct, with two fans operating; and
- Night-time operation (1630 hrs to 0830 hrs): Flow through scrubber, with one fan operating.

A snippet of the SCADA display monitor for day-time and night-time settings is shown in **Figure 3.3**.



Figure 3.3 – A view of the SCADA system (6 December 2022)

3.1.7 Weather Station

In addition to the OMS, a weather station is installed at the Erskine Park Facility to record local meteorology conditions. The parameters recorded by the weather station include:

Rainfall;



- Wind speed (10 m);
- Wind direction (10 m);
- Temperature;
- Relative humidity; and
- Solar radiation.

The weather station will assist in identification of adverse weather conditions and will be a fully integrated system whereby the weather station communicates with the OMS. This will allow additional levels of control, so that the system can be optimised to suit prevailing weather conditions. In addition, the observational data will be logged and stored in a database for use in:

- Complaints investigations; and
- Any air dispersion modelling studies that are required to be performed for the WTS in the future.



4 OPERATIONAL ODOUR MANAGEMENT PROTOCOL

In broad terms, the operational odour management protocol can be characterised in two distinct categorises, namely:

- 1. Engineered controls;
- 2. The non-engineered controls include:
 - a. Housekeeping;
 - b. Operational practices; and
 - c. Staff training.

The engineered controls and non-engineered controls are outlined and described in **Section 4.1** and **Section 4.2**, respectively.

4.1 ENGINEERED CONTROLS

As detailed in **Section 3.1**, the OMS for the WTS consists of multiple levels of control that facilitate an integrated solution for air emissions management at the Erskine Park Facility. These control levels are characterised as follows:

- Containment: containment of odour within the WTS building fabric using fast acting doors and an air extraction system. The fan airflow rate is set to achieve a minimum of three (3) air changes per hour, although this is varied to suit operational circumstances;
- Maximum plume dispersion: the use of the Tri-stack System technology to maximise the dilution and initial plume dispersion of the extracted air from the WTS building.
- Emissions control equipment: the operation of an emissions control system (wet scrubber) when required.

The Erskine Park Facility also consists of a dust suppression system to manage particulate matter/dust within the WTS building fabric. This is activated based on operational conditions within the WTS building.

4.2 Non-Engineered Controls

The following non-engineered controls are implemented at the Erskine Park Facility:

- Good housekeeping practices are always maintained, including but not limited to:
 - Regular cleaning of spillages within the WTS building; and
 - Regularly maintenance of plant equipment to ensure that they are operating in an optimum state at all times.



- The undertaking of regular toolbox meetings to discuss environmental management and performance at the Erskine Park Facility. Any follow-up actions from the toolbox relating to odour should be documented and implemented, as required;
- The OMS is to be regularly inspected for faults and any visible signs of deterioration. This is independently managed by an external contractor (refer to Section 8.3);
- The regular cleaning of the floor area to minimise of build-up of floor waste; and
- No storage of waste external of the WTS building fabric under any circumstances.

A summary elaborating on the non-engineered control adopted at the Erskine Park Facility is outlined **Table 4.1**.

4.3 Administrative Control

As previously mentioned in **Section 1.4**, the OMP is regularly reviewed, updated, and maintained as required.

Table 4.1 – Oper	ational controls for odo	ur management at the Erskine Park Facility
Control Type	Issue Description	Control Measure
Housekeeping	Spillage	 All waste handling operations take place within the WTS building.
		 All putrescible waste is stored within the WTS.
		 Any waste stored outside the WTS is covered.
		 The waste is transported on and off-site in appropriate vehicles. The exception is mattresses and tyres which and stored in sealed / covered containers / bins outside of the WTS building.
		 Plant walkways are cleaned as required pending daily supervisor inspections.
		 Sweeping is undertaken regularly with particular focus on high use areas such as the weighbridge and waster
		 Roadways are inspected regularly and cleaned as required.
		 All vehicles carrying loads arrive and depart with covers in place to prevent fugitive emissions and littering.
		 Vehicles carrying loads are visually inspected prior to leaving the WTS building, to ensure that any debris is onto public roads.
	Cleaning	 Good housekeeping is maintained, to include the cleaning down of all areas within the building including floc of any residues or debris and reduce the potential for odour.
		 Putrescible waste stockpiles are kept to as low as reasonably practicable to minimise the impact on odour with
		 The internal areas have been designed to reduce the number of inaccessible areas for cleaning, and the push waste accumulation behind them.
		 Flashing is installed at top of push wall to prevent waste overtopping into void between push wall and buildin
		 All drainage systems on-site are regularly maintained to ensure they are free of detritus.
Operational	Waste	 Delegated staff ensure that capacity is available on-site before accepting waste.
		 Loads are not accepted unless they are weighed, sufficient storage capacity exists and there are no existing of OMS.
		 All waste types are subject to visual inspection upon arrival and where a waste load is not in line with accept or is deemed too odorous, it will be transferred and removed from site as quickly as possible to prevent furt generation of odour.
		• A note of the load rejection is made in the site diary and a load rejection form will be completed, with a copy
		 Any sources of waste which persistently do not meet acceptance requirements trigger remedial action to be

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ch are isolated from the waste stockpiles

e reception areas.

s not transferred out of the WTS building

ors and bay walls to ensure the removal

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walls are sealed and flashed to prevent

ng envelope.

issues compromising the effectiveness

pted waste types under the EPL 20986, ther degradation and minimise potential

of this form kept on-site.

taken.

Table 4.1 (continu	Table 4.1 (continued) - Operational controls for odour management at the Erskine Park Facility			
Control Type	Issue Description	Control Measure		
Operational (continued)	Storage times	 A second inspection of the material takes place within the WTS building of the Erskine Park Facility. 		
		 Any waste discharged within the WTS that is found to be excessively odorous by the WTS operatives is 'qua to be immediately removed from Erskine Park Facility. Information regarding such loads will be recorded with 		
		 In all other cases, all putrescible waste is endeavored to be removed within 48 hours of receipt on-site. 		
		 Waste material is moved in a regular and consistent manner and the site will generally operate a first in an waste streams ensuring that offensively odorous waste is removed from site as quickly as possible to pre potential generation of odour. 		
		 Given the low odour potential, the non-putrescible and dry recyclable waste fraction may be stored on-site for 		
	Fugitive emissions from doorways	 All personnel access and fire doors are kept shut except in case of fire. 		
		 The fast-acting doors on the waste delivery/export doorways are operated in accordance with manufacturer be held in an open position unless the secondary containment door is closed. 		
		 A programme of regular inspection (every quarter or as agreed with the door manufacturer) and maintenance and their opening/closing mechanism. 		
		 Maintenance required on doors are undertaken as quickly as reasonably possible. 		
	Wastewater	 Leachate (liquor from putrescible waste) is collected and managed via the on-site leachate management syste 		
Staff Training	Internal training	 In addition to general environmental awareness training, specific training is provided to relevant staff, which i 		
		 The regulatory requirements associated with the EPL 20986; 		
		 Potential environmental impacts which may be caused by the WTS activities and plant equipment under th circumstances; 		
		 Prevention of accidental emissions and actions to be taken when accidental emissions occur; and 		
		• Procedures for compliant handling, investigation, resolution and reporting back to the complainant and N		
		 All employees are trained and instructed to remain vigilant and report any unusual odour around the WTS Branch Manager. 		

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arantined' and arrangements made for it thin the site diary.

nd first out (**FI-FO**) policy on putrescible revent further degradation and minimise

or longer.

r's specifications and not deactivated to

ce is in place for the roller shutter doors

em (managed by an external contractor).

include:

their control during normal and abnormal

ISW EPA.

building or vehicles immediately to the

5 ABNORMAL EVENTS AND OPERTIONAL CONTINGENCY

The Erskine Park Facility has been designed with redundant capacity in the OMS so that any unexpected increase in odour emissions can be managed. However, incidents that might adversely affect the control of odour at the Erskine Park Facility are considered as part of the OMP. Measures are put in place to reduce the likelihood of an incident occurring, minimise any impacts if an incident were to occur, and recover control of the process as quickly as possible. This section of the OMP considers those events which could lead to circumstances under which satisfactory odour control/management cannot be achieved through the measures outlined in OMP and can cause odour impact on the surrounding receptors (refer to **Section 2.2** for details).

Table 5.1 presents identified events which have the potential to lead to adverse odour emissions from the Erskine Park Facility together with contingency measures for each identified event. In preparing this plan, the following have been considered:

- Investigation and substantiation of odour complaints in accordance with Section 6 and Section 7 of this OMP;
- Possible process or control failures or abnormal situations which could lead to an increased level of offensive odour emissions;
- Potential outcomes of different failure scenarios;
- The actions to be taken to mitigate the effect of odour release; and
- A contingency plan to mitigate the effects of offensive odour release should initial actions taken to mitigate the effect of offensive odour release fail.

In assessing possible risks of odour release, four (4) main types of failure have been considered, namely:

- 1. Those with the potential to affect the process and hence generation of offensive odour;
- 2. Those which affect the ability to abate offensive odour release;
- 3. Those which affect the ability to contain odour; and
- 4. Those affecting dispersion between the release point and sensitive.

Table 5.1 - Abnormal events management and contingency measures at the Erskine Park Facility						
Event	Preventative Measures	Trigger Point	Contingency 1			
Breakdown of waste handling equipment Front end loaders, excavators and waste sorting equipment will be used for sorting of received waste and loading onto trucks.	 Appropriate selection of mobile equipment with waste handling specifications. Routine monitoring and maintenance of all equipment. Not overloading equipment. Maintain critical spares. Minimise storage of waste on-site. Roller shutter doors normally closed to contain odours inside WTS building. 	 Report of breakdown. Detection of offensive odours at industrial precinct boundary. 	 Movement of waste on the WTS floor will be minimised. Review WTS building ventilation rates and adjust if necessary. On-hire backup (mobile equipment). 			
Breakdown of roller shutter doors Fast acting doors operated by proximity sensors or pressure pads will operate in the 'closed' position unless triggered by an approaching vehicle.	 Routine monitoring and maintenance of doors Negative pressure ventilation system Maintain critical spares. Minimise storage of waste on-site. Secondary containment doors installed in WTS, which are to be closed in the event of a failure of the fast-acting roller door. 	 Report of breakdown. Detection of offensive odours at industrial precinct boundary. 	 Fast acting door affected by breakdown closed manually, if possible, to contain odours inside WTS building. Trucks delivering waste to the WTS directed to only use fast acting door entrances that are still in operation. For the entry/exit doors, there are functioning steel doors for the high-risk area (i.e., the main WTS building waste storage area). 			
Breakdown of Tri-stack Fan System Dispersion stacks are designed to offer substantially enhanced emission control through the entrainment of additional dilution air from the surrounding environment, so that the odour is diluted and mixed at the point of discharge and the emission velocity is enhanced.	 Routine monitoring and maintenance of dilution fan system. Maintain critical spares. Minimise storage of waste on-site. Redundant standby dispersion stack installed and operable. CO monitoring system installed in WTS building. 	 Report of breakdown. Detection of offensive odours at industrial precinct boundary. 	 Commence operation of redundant standby unit. Wet scrubber system activated (if required). 			

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		Contingency 2
S	•	All elements of OMS activated.
if ile	•	Receipt of waste material temporarily halted, if a backup machine is not available to continue load-out of waste
oy if	•	Review WTS building ventilation rates.
rs	•	All elements of OMS activated.
ne Ist re	•	All waste material transported off-site.
re or in ge	•	Receipt of waste material temporarily halted.
of	•	Review WTS building ventilation rates.
ed	•	All elements of OMS activated.
	•	All waste material transported off-site.
	•	Receipt of waste material temporarily halted.

Table 5.1 (continued) - Abnormal events management and contingency measures at the Erskine Park Facility				
Event	Preventative Measures	Trigger Point	Contingency 1	
Breakdown of wet scrubber system The wet scrubber system is on- standby and activated during periods of high waste throughput, adverse weather conditions and/or emergency scenario.	 Routine monitoring and maintenance of wet scrubber system. Maintain critical spares. Minimise storage of waste on-site. Redundant standby high plume dispersion stack installed and operable. 	 Report of breakdown. Detection of offensive odours at industrial precinct boundary. 	 Review WTS building ventilation rates and adjust if necessary. Dilution fan rates increased to assist with dilution of odorous emissions. Commence operation of redundant standby dispersion stack (if required). Minimise waste handling and disturbance of odorous material. 	
Escape of incoming waste Spillage of waste on site may promote elevated levels of odour	 Good housekeeping. Mandatory covering of all incoming and outgoing trucks carrying loads. Staff training. 	Spill.Loss of containment.	 Immediate removal of waste. Clean-up affected area. 	
Breakdown of air extraction System The ventilation rate within the waste reception hall during periods of normal operation will be three (3) air changes per hour.	 Routine monitoring and maintenance of extraction system. Maintain critical spares. Minimise storage of waste on-site. 	 Detection of offensive odours at industrial precinct boundary. 	 Roller shutter doors closed to contain odours inside the WTS building. Receipt of waste material temporarily halted 	
Abnormal traffic conditions To help minimise odour emissions associated with the breakdown of organic materials over longer time periods, all waste will be transported off-site within 48 hours of receipt.	 Outside the control of the operator. Integrated OMS includes treatment step (wet scrubber). CO monitoring system installed in WTS building for occupational exposure management. 	 Waste cannot be transferred from the WTS (e.g., temporary closure of approved transport route) 	 Review WTS building ventilation rates and adjust if necessary. All levels of OMS i.e., wet scrubber (refer to Section 3). 	



		Contingency 2
ig if	•	Receipt of waste material temporarily halted.
to IS		
of		
id IS		
to S	•	All waste material transported off-site
al		
ig if	•	Operations within the WTS building may continue at reduced air changes, with CO monitoring system driving minimum air extraction rate.
	-	Receipt of waste material temporarily halted once the capacity of the WTS building is reached.

Table 5.1 (continued) - Abnormal events management and contingency measures at the Erskine Park Facility						
Event	Preventative Measures	Trigger Point	Contingency 1	Contingency 2		
Power outage Ventilation, wet scrubber, dilution fan	 Outside the control of the operator 	 Emergency shutdown, including the OMS. 	 Roller shutter doors manually closed to contain odours inside WTS building. 	 Backup generator procured to keep OMS operational. 		
and rapid acting roller shutter door systems are dependent on electricity.			 Receipt of waste material temporarily halted when capacity of WTS building reached. 	 WTS activities resume under temporary power supply if OMS is adequately operational. 		
Abnormal conditionsmeteorological conditionsAbnormal may promote odour.meteorological conditions conditions odour.	 Outside the control of the operator 	 Forecast of extreme winds and gales which can potentially overcome negative air pressure of WTS building. 	 Review WTS building ventilation rates and adjust if necessary. Ventilation rate increased; all fast-acting doors to remain closed. Wet scrubber system automatically activated. 	 If Contingency 1 measures ineffective, receipt of waste material temporarily limited/halted. 		



6 INDEPENDENT ODOUR MONITORING PROGRAM

As part of the EPL 20986 requirements, an independent odour monitoring program is in place to adequately review the odour performance of the OMS and WTS activities at the Erskine Park Facility. The requirement is outlined in an NSW EPA letter dated 16 June 2020 – a snippet of the key details is shown in **Figure 6.1**.

Monthly surveys

The frequency of the FAOA surveys can be decreased to quarterly, with monthly surveys during Autumn when there is an inversion layer that increases the potential for odour impacts offsite. They should therefore be done in December, March, April, May, June, and September.

Expanded odour monitoring program

The EPA agrees that the odour monitoring program could be expanded and during the December FAOA survey, the following additional items, as suggested by The Odour Unit, should be included:

- 1. Odour performance testing of the Odour Management System (**OMS**), with a focus on the quality of the Tri-stack system discharge to the atmosphere;
- 2. Smoke testing to validate building containment efficiency and critical fugitive emission release points; and
- 3. The collection of airflow and negative pressure measurements to assess the physical performance of the OMS.

Figure 6.1 - A snippet of the NSW letter relating to the existing odour monitoring program dated 16 June 2020

6.1.1 Existing Odour Monitoring Protocol

The undertaking of the odour survey monitoring program is a project approval requirement of SSD 7075 for the WTS Facility, and was activated following the completion of the Odour Audit Report

As per TOU's letter titled *Cleanaway Erskine Park Waste Transfer Station – Field Ambient Odour Assessment Survey Frequency Review & Future Odour Monitoring Program* dated 27 May 2020 (the **May 2020 Report**), NSW EPA approved the following annual monitoring program frequency and scope as follows (as outlined in **Figure 6.1**):

- Month of September;
- Month of December (in addition to the Field Ambient Odour Assessment (FAOA) survey, this month also involves odour sampling, building pressure testing and physical evaluation of the odour management system);
- Month of March;
- Month of April;
- Month of May; and
- Month of June.

It should be noted that the Odour Audit Report contains a detailed methodology for the undertaking of the FAOA surveys at the WTS Facility and should be referred to and read in conjunction with the OMP. It is also noted that the FAOA survey coverage is at



near-field receptor locations including the Erskine Park Industrial Estate and relevant residential locations. If deemed necessary (i.e. in the event of a positive odour detection from the WTS Facility), the coverage of an FAOA survey session is expanded to include the residential areas to the north to assess the extent of the odour plume range and detection.

The current odour monitoring protocol may be subject to refinement following consultation with NSW EPA.

6.1.1.1 Month of March, April, May, June, and September Monitoring Protocol

The current protocol for the annual odour survey monitoring program at the Erskine Park Facility in the month of March, April, May, June, and September is as follows:

- A summary of relevant on-site observations from prior to or after the completion of each FAOA survey;
- The undertaking of an FAOA survey;
- A visualisation of the FAOA survey data on an aerial map;
- An analysis of meteorological conditions prevailing during the FAOA survey;
- A description of the prevailing operating conditions during the monthly FAOA survey; and
- Recommendations on follow-up actions, if required.

6.1.1.2 Month of December Monitoring Protocol

The current protocol for the annual odour survey monitoring program at the Erskine Park Facility in the month of December is as follows:

- A summary of relevant on-site observations from prior to or after the completion of each FAOA survey;
- The undertaking of an FAOA survey, similar to that conducted in the Odour Audit Report;
- A visualisation of the FAOA survey data on an aerial map;
- An analysis of meteorological condition prevailing during the FAOA survey;
- A description of the prevailing operating conditions during the monthly FAOA survey;
- A set of validation measurements to evaluate the performance of the odour management system (Tri-stack Fan System and scrubber vessel), consisting of:
 - Gas sample collection and odour testing;
 - Physical measurement collection; and
 - Building pressure testing.



- An analysis of the results of the validation measurements regarding the WTS Facility's current performance compared against the design targets set in the Odour Audit Report;
- Documentation of logged complaints in the reporting period for the relevant month; and
- Recommendations on follow-up actions, if required.

6.1.1.3 Reporting requirements

The outcomes from the independent odour monitoring program are documented in memorandum-style reports routinely issued to the Branch Manager. If required, they can be issued for review by external stakeholders upon request.



7 ODOUR COMPLAINT MANAGEMENT AND RESPONSES

The Erskine Park Facility has established the following procedure for managing and acting on environmental complaints, including odour complaints. The following documented procedure is to be followed when handling a complaint.

7.1 PROCEDURES FOR RESPONDING TO ODOUR COMPLAINTS

The Shift Supervisor and Branch Manager of the Erskine Park Facility have ownership of the management system and authority and responsibility to ensure that necessary corrective actions are taken. The Environmental Business Partners (**EBP**) provide support to operations.

All environmental complaints can be received through any of the following avenues:

- 1. NSW EPA;
- 2. Ringing the Cleanaway Hotline on 1800 213 753;
- 3. Directly to site; or
- 4. General Enquiries on 13 13 39.

The following procedure is to be followed when a complaint is received:

- 1. All environmental/odour complaints must be directed immediately to the EBP. In the even both are not present, the process operator on-duty will handle the complaint.
- 2. The Cleanaway events database is called 'Myosh'. The Myosh, amongst other purposes, is the environmental complaints database for Cleanaway and the Erskine Park Facility. As a minimum standard, the following details are to be recorded in the Myosh for an odour-related complaint:
 - a. Name of complainant and contact details (if they want to be identified). Details are required to enable the Erskine Park Facility to report back to the person once the complaint is investigated. The method by which the complaint was made should also be recorded.
 - b. Nature of complaint noise, dust/smoke, odour, spill, incident, etc.
 - c. Duration of the problem (dates and times) if known/provided by the complainant.
 - d. Where an odour complaint is lodged, the recording of odour descriptors is strongly encouraged. Also, if possible, an indication on the strength of the odour on a scale of 1 to 10 (with 1 being very faint and 10 being very strong and leading to a physical reaction) is beneficial.
- 3. The Branch Manager / Shift Supervisor together with the EBP then must investigate the complaint and, if applicable, initiate corrective action. The

information is to be recorded in the Myosh, with a response provided within 24 hours – 48 hours (business days) after confirmed receipt of the complaint.

- 4. The Branch Manager / Shift Supervisor must then distribute a copy of the complaint to the process operators.
- 5. Complaints received directly from the NSW EPA are to be sent to the Branch Manager / Shift Supervisor for investigation in consultation with the EBP. The action taken by operations in response to the complaint, including any follow-up contact with the complainant, must be recorded. If no action was taken, the reasons why no action was taken must also be recorded.
- 6. The Branch Manager / Shift Supervisor must review the complaints and enter the complaints into the Myosh. If the complaint is the same as one received directly by the company, then the NSW EPA Reference Number is to be added to the existing complaint (so doubling up does not occur).

Figure 7.1 illustrates the complaints handling process flow at the Erskine Park Facility.



Figure 7.1 - Odour complaints handling procedure for the Erskine Park Facility



8 KEY STAFF AND RESPONSIBILITIES

This section summarises the key staff and responsibilities for ensuring that the OMP is valid, up to date and seek its overall implementation. The key staff responsible for the OMP at the Erskine Park Facility operations include:

- Shift Supervisor;
- Branch Manager;
- EBP; and
- OMS Contractor.

8.1 SHIFT SUPERVISOR

The Shift Supervisor responsibilities are as follows:

- The environmental sustainability, continuity of the waste processing and business operations of the Erskine Park Facility;
- Oversees the operators during a normal shift period, ensuring that all activities and operations are conducted in compliance with management plans and operating systems including supervision of those relating to environmental management (including odour);
- Reports to Branch Manager on operations and address of performances that require infrastructure support; and
- Implementation of the OMP on a day-to-day basis at the Erskine Park Facility.

8.2 BRANCH MANAGER

The Branch Manager responsibilities are as follows:

- Overall responsibility for the management of operational activities for the Erskine Park Facility, including the oversight of the odour management and control systems;
- Oversees management of the Erskine Park Facility ensuring that all activities and operations are conducted in compliance with management plans and operating systems including supervision of those relating to environmental management (including odour);
- Is advised of any relevant odour complaints;
- Implementation of the OMP on a day-to-day basis at the Erskine Park Facility;
- Overall responsibility for administrative controls and environmental management systems for the Erskine Park Facility;
- Responsible for the maintenance of the monitoring records; and



 Overall responsibility for the environmental safety and diligent management of the accepted waste streams.

8.3 EBP

The EBP responsibilities are as follows:

- Support the site with environmental compliance (including odour);
- Assist in responding to regulators / complainants; and
- Provide the operations team with advice.

8.4 OMS CONTRACTOR

The OMS is managed by an external contractor commissioned by Cleanaway. The nominated OMS contractor is responsible for the following:

- Overall management of the OMS;
- Overall monitoring of the performance and condition of the OMS;
- Troubleshooting and remote monitoring support;
- Continuous improvement and optimisation; and
- Preventative and routine maintenance on all aspects of the OMS.



End of Document