Public Environmental Report

July 2020 to June 2023

Dulverton Organics Recycling Facility (EPN 7852/1)

Dulverton Regional Waste Management Authority

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CONTENTS

1. INTRODUCTION

This report has been prepared for the EPA as part of the application made by Dulverton Waste Management (DWM) for a remission from the variable component of the annual licence fee for the Dulverton Organic Recycling Facility (DORF).

In order to apply for this remission, it is a requirement under the Annual Fee Remission Guidelines to prepare a report covering the previous three-year period of operations of the site, using the criteria listed in the Guidelines.

2. ACRONYMS

CAR	Corrective Action Request
DORF	Dulverton Organic Recycling Facility
DWM	Dulverton Waste Management
EMS	Environmental Management System
EPA	Environment Protection Agency
EPN	Environment Protection Notice
SWMS	Safe Work Method Statement
DOT	Dulverton Organics Transformation (Project)

3. BUSINESS PROFILE

Dulverton Waste Management (DWM) is a jointly owned venture by Devonport City Council, Kentish Council, Central Coast Council, and Latrobe Council. DWM exists to provide environmentally sound waste management services for its owners, the community and Industry. DWM operate a regional landfill, and an Organics Recycling Facility (DORF) which is located directly south west of the landfill.

The DORF has been a key environmental initiative in recent times as it allows the diversion of tonnes of organic waste away from the landfill each year. Organic waste streams from a number of local waste generators are delivered daily and are blended with carbonaceous materials using scientific based methods to create a high-value input for horticulture and agriculture. It is sold to various locations around Tasmania.

The operation of the DORF is contracted to Gradco who employ two full time staff onsite, and others when required.

4. ENVIRONMENTAL POLICY

Appendix A – Environmental Policy, Version 12/08/2020.

5. REPORTING PERIOD

The reporting period is July 2020 – June 2023

6. ACTIVITY PROFILE

6.1 Summary of Plant and Operations on site

- Windrows of organic material, at varying stages of pasteurisation and decomposition
- Stockpiles of green waste, intermediate-sized compost, and wood fines for mixing with organic waste delivered to site by customers
- Stockpile of wooden pallets to be chipped, and, at times, stockpiles of chipped pallets
- Stockpiles of finished, screened compost ready for sale to customers
- Two heavy duty concrete 3-sided pits for trucks to deliver into, and for mixing of organic waste on arrival, in preparation to be windrowed
- Wheel Loader mixing materials in the mixing pits in preparation to be windrowed
- Windrow Turner for turning windrows (purchased in January 2020 and stopped using in 2021)
- Wheel Loader for shifting materials to the mixing pit, around the site and for loading trucks
- Mobile two-way split screening machine to screen large pieces of material out of the finished product
- Storage pond for collection of leachate
- Pump shed at the storage pond housing;
    - 1 pump to irrigate compost leachate back onto windrows and to supply truck bin wash-down hose at mixing pits
    - 1 pump for use for irrigation of leachate into approved disposal area
- Two domestic-type water tanks for day storage of liquid waste delivered by customers
- Pump and storage shed near liquid waste storage tanks, to get liquid waste out of tanks when required
- Above-ground irrigation system for disposal of excess leachate
- Shipping container for storage of tools and compost batch samples
- Vehicles for moving personnel around site.

6.2 Production Capacity and Actual Production Capacity

Schedule 2 of EPN 7852/1 states;

1. The activity must not exceed the following limits (annual fees are derived from these figures):

    1.1 25,000 tonnes per year of production of compost or mushroom substrate.

Table 1 details the quantity of compost produced at the DORF between 2017/18 and 2022/23.

Table 1 – Compost production at the DORF

Compost Sales	2017/18 Actual	2018/19 Actual	2019/20 Actual	2020/21 Actual	2021/22 Actual	2022/23 Actual
Cubic Metres (m^3)	**7,566**	**10,064**	**12,185**	**8,894**	**9,464**	**8,865**
Approx # of Tonnes	**4,539**	**6,038**	**7,311**	**5,336**	**5,678**	**5,319**

NOTE: The average weight of a cubic metre of compost is 600kg.

6.3 Raw Material Consumption Level

EPN 7852/1 does not specify a limit on the use of raw materials.

6.3 Product Markets and Sources of Raw Materials

Dulverton compost is sold around Tasmania to landscaping supply and plant nursery businesses, and has always been popular as an input for orchards and vineyards. In recent times there has been an increasing market for its use in both conventional agriculture and biological/organic farming situations.

Table 2 details the raw materials currently used in the production of Dulverton Compost.

Table 2 – Raw materials utilised in composting

Raw materials delivered by customers for disposal	Carbonaceous material kept on site for mixing
Milk processing waste; sludge, whey cream, waste water	Green waste – delivered from local Council transfer stations
Biosolids from sewerage treatment plants, primarily in N.W region	Wood fines – purchased from N.W processors
Potato waste from processing factory (filter crumb)	Wooden pallets – delivered by customers and shredded by a contractor once delivered to site
Supermarket organic collection bins and meat waste collection bins	'Intermediate' compost - larger particle size that is screened out of the premium compost
Animal manure	Berry Coir – delivered from local berry growers

6.5 Pollution Discharges, Wastes and Control Measures

A cornerstone document of the Environmental Management System is the Aspects and Impacts Register. All parts of the operation are identified in terms of where they have potential to interact with the environment (referred to as an aspect), and the potential problem this could cause (the impact). A risk rating is then calculated, control measures are developed and listed in the Register, and a residual risk rating is calculated based on all control measures being implemented correctly.

Several measures are then put in place to check and monitor any control measures that are implemented for an identified aspect, to ensure that it is adhered to. Control measures are altered or improved as necessary to provide suitable environmental protection.

Sections 6.5.1 to 6.5.10 addresses the criteria, listed in the Annual Fee Remission Guidelines, for potential and actual impacts on the environment.

6.5.1: Air emissions, including odour

Earlier in the history of the introduction of composting to the DWM business model, there have been periods where air emissions may have contributed to odour. This was likely due in part to a less than ideal composting process, and in part due to odorous inputs that were previously accepted. As a result, a number of waste streams are no longer accepted at the DORF.

Current practice only allows delivery of waste to the DORF by pre-approved customers. Every potential input is subject to extensive testing and analysis before being considered suitable for composting. Rules of entry to site, made clear in the annual induction, emphasise that DWM can (and will) refuse acceptance of waste if it is non-compliant with composting requirements.

In addition to these restrictions, in recent years DWM management have implemented several changes to the operations on the site to improve the method of composting. Using the format of the EMS, a detailed work instruction has been developed over the years and essentially makes clear what site personnel are expected to do. This is updated whenever an alteration is made to the work practice.

Improvements in process coupled with transparent and frank communication have led to an improvement in the relationship with the community and the regulator. Current DWM management have had an open and honest approach to any complaints received from surrounding residents. These complaints are recorded on the Corrective Action Request (CAR) task list and staff are expected to follow up and investigate any cause, and record any action taken to improve the situation. This task list is made available to the Board and is included in the Annual Environmental Review.

It is a requirement of DWM systems for staff and contractors to fully cooperate and welcome EPA officers on site. Current DWM staff are very proud of their role in changing the culture of this business regarding these important relationships.

6.5.2: Water emissions, wastewater & stormwater

Any stormwater that falls on the part of the site where windrows and composting activities occur drains to the leachate storage dam through a series of v-drains and culverts around the site. Rain filters through the windrows or falls directly onto the work area where there may be remnants of compost material, and collects minute particles of nutrients and organic matter along the way, making it unsuitable to divert off site.

Any stormwater that falls outside of the actual composting footprint, such as on the wooden pallet stockpile or the bush area around the site, is collected in series of separate drains around the outside of the site. To improve the management of leachate from composting it is important to identify any sources of stormwater that are unnecessarily entering the leachate storage dam.

As part of the requirement of EPN 7852/1, Attachment 3, DWM's DORF Leachate Management Plan should be referred to for detailed information on this subject.

6.5.3: Noise emissions

Adverse noise emissions have not been recorded from the composting site given the machinery and processes used.

6.5.4: Land/soil contamination

All composting occurs on a hardstand surface, in a footprint that has been approved by the EPA for this purpose. The construction of the surface is such that soil contamination is unlikely in this area. Irrigation of compost leachate in a nearby DWM-owned pine plantation has potential to contaminate soil in the immediate area. The irrigation system was developed by a third-party consultant and was then approved by the EPA prior to implementation.

As a result of this approved design there are licence requirements for testing of the soil and compost leachate. DWM has implemented these into the EMS and set several control measures to ensure that the necessary monitoring is carried out.

6.5.5: Wastes, general and controlled

No waste is generated from composting. The composting site is providing an environmentally beneficial disposal option for the waste of other businesses.

Any windrows that do not reach the pasteurisation requirements or exceed contamination levels, required by AS 4454 *Composts, soils and mulches* are used as either day-cover or growing medium on the landfill, where there is the benefit of a controlled impact system for waste water and gas.

6.5.6: Energy use

The use of energy on the site is not considered to be a point source for adverse emissions. The only requirement for electricity is to operate the two pumps at the leachate storage dam.

Minimal machines and vehicles are required. Every day a windrow turner or excavator and a wheel loader work on site and occasionally a truck is required for shifting stockpiles of material around the site or to the landfill. Waste is delivered in trucks or tankers.

6.5.7: Water use

All 'water' used on the site is compost leachate, which is recirculated from the storage dam for some of the following uses; wash-down hoses for truck drivers to wash their delivery bins at the mixing pits, firefighting or when appropriate, irrigating on dry windrows.

6.5.8: Measures taken to manage and minimise greenhouse emissions

A significant environmental benefit from the development of the DORF is the removal from the waste stream to the landfill of large amounts of organic waste, which previously would have contributed to the generation of greenhouses gas emissions as they anaerobically decomposed. This is considered by DWM to be a significant outcome for Northwest Tasmania in responsibly taking action to minimise greenhouses gases.

Another significant benefit of composting this material is that the end result is a high-quality compost that puts nutrients and carbon back into the soil that would otherwise be lost if they were landfilled. The benefits of carbon storage in soil are beginning to be understood by the agriculture and horticulture communities, but perhaps the use of compost to achieve this is not yet widely known. DWM prides itself on making a product that has real value as a soil input, but also in demonstrating how greenhouse gas emissions can be minimised by this type of recycling.

There is evidence that 1 – 2% of total greenhouse gases world-wide come from the production of synthetic fertilisers, therefore producing compost as a replacement fertiliser has additional global benefits.

6.5.9: Flora, fauna and biodiversity, on site and surrounding

The title of land that the DORF sits on is quite large but composting itself occurs only on a small portion, identified in Attachment 1 of the EPN. The land outside this identified footprint is not used by DWM for composting but is left to provide habitat for native flora and fauna.
The leachate storage dam is surrounded by 3m high security fencing, designed to keep out access by people and animals. Water birds are occasionally observed on the lagoon.

A Flora and Fauna Information Sheet, which identifies local special values and discusses the need to protect the plants and animals around the site, is available for all any personnel onsite.

The most significant adverse impact on native wildlife from the DORF is the regular food source for feral cats, which also occurs at the landfill. The impact of feral cats on birds and small animals is well known in Tasmania and is an unfortunate result from an activity that has such positive environmental benefits in other ways. A cat trapping program has been implemented in previous years and continues on a routine basis; this is conducted by a licenced contractor.

6.5.10: Cultural and aboriginal heritage

There are no known adverse impacts on cultural or aboriginal heritage from the operations at the DORF.

6.6 The Local Environment

Surrounding the DORF is the Dulverton landfill (to the northeast), privately-owned Forest plantations, (to the north, west and south), and a pine plantation (to the east) owned by DWM. Some natural vegetation follows Caroline Creek on the eastern boundary of the landfill site. In the wider vicinity, to the south and west there continues large plantations and areas of native vegetation. On the eastern side, there is pasture and to the northwest of the site there are small farm holding and 'lifestyle' blocks, much of which are used as pasture. Access to these properties is by gravel road.

Cement Australia operates a site near Railton, approximately 3kms from the DORF. A railway line is in place to take deliveries from the cement plant to the port at Devonport, and this more or less follows the eastern boundary of the DWM landfill site.

For an extended period DWM have leased a small area of land located to the northeast of the landfill to Costa Group for making compost for mushroom growing. This lease ended in early 2020/21 with the Costa Group closing its mushroom facility. The area previously leased to Costa Group is now being used for screening and stockpiling DWM compost.

6.7 The Regional Environment

Table 3 details the mean rainfall, maximum and minimum temperatures for January and June. This data is calculated from records between 1997 and 2023 and is produced from the nearest weather station at Railton.

Table 3 – Mean weather data from Railton

Month	Mean maximum temp	Mean minimum temp	Mean rainfall
January	22.3ºC	10.9 ºC	62.1mm
June	11.6 ºC	3.9 ºC	113.8mm

(Source: eldersweather.com.au/climate-history/tas/railton)

There are air monitoring stations in Sheffield and Latrobe; both stations regularly advise air quality to be good.
(Source: EPA.tas.gov.au/epa/air/monitoring-air-pollution)

The typical prevailing winds are Westerly.

6.8 Significant Changes during the Reporting Period

The Dulverton Organics Transformation (DOT) Project commenced construction in late 2022 and will replace the current open windrow composting facility once it has been commissioned (which is scheduled to commence in July 2024). Project details can be found by visiting our website: http://dulverton.com.au/facility-upgrade/

7. PERMIT CONDITIONS

A copy of EPN 7852/1 is attached in Appendix B.

8. RELEVANT ENVIRONMENTAL LEGISLATION

- Environmental Management and Pollution Control Act 1994 (Tas)
- Land Use Planning and Approvals Act 1993 (Tas)
- Threatened Species Protection Act 1995 (Tas)
- Weed Management Act 1999 (Tas)
- State Policy on Water Quality Management 1997
- Tasmanian Biosolids Reuse Guidelines, 1999
- AS/NZS ISO 14001:2015 – Environmental Management Systems
- Climate Change (State Action) Act 2008 & Amendment Act 2021

9. COMPLAINTS RECEIVED BY THE PUBLIC/NON-COMPLIANCE WITH PERMIT CONDITIONS

Complaints received by the public are recorded as Corrective Action Requests (CAR's), as are any environmental incidents that occur. The structure of the system under the EMS requires DWM staff to resolve the situation, then implement any reasonable actions that will prevent a recurrence. All action taken, and by whom, is recorded on the Register which is reviewed by the Board at each meeting, and supplied to the EPA in every Environmental Annual Review.

See Appendix C for details of all complaints and incidents that occurred during the reporting period.

10. INFRINGEMENT NOTICES AND EPN'S

The DORF is permitted to operate under the conditions of Environment Protection Notice 7852/1. In addition, the EPA issued an approval notice (10065/1) allowing DWM to compost Liquid Wastes (subject to conditions).

Above average rainfall in September 2022, resulting in the severe flooding event across Tasmania, caused an overflow of diluted leachate from the DORF leachate storage pond. Despite no environmental impacts or nuisance caused, this event was reported to the EPA and constitutes a contravention of Condition EF2 or Permit No. DA 73/02 as varied by EPN No. 7852/1.

As a proactive measure approval was received (with specific requirements) to manage the storage capacity through undertaking controlled discharge if required, between 1 November 2022 and 29 February 2023. Despite this approval no controlled discharges were undertaken.

No other EPN's or Infringement Notices have been issued in the reporting period.

11. ACTIONS UNDER EMPCA: ENVIRONMENTAL AGREEMENTS, IMPROVEMENT PROGRAMS, AND MANDATORY ENVIRONMENTAL AUDITS

During the reporting period no environmental agreements or improvements programs were required or implemented.

12. PROSECUTIONS AND ENFORCEMENT ACTION

No proceedings have been taken in relation to the activity in the reporting period, either under Tasmanian or Commonwealth environmental legislation, other legislation, or local government by-laws.

13. ENVIRONMENTAL MONITORING

Environmental monitoring is carried out by an independent consulting company. DWM engaged GHD to carry out this work during the reporting period.

A copy of the most recent report is attached in Appendix D.

14. STAFF AND CONTRACTOR ENVIRONMENTAL TRAINING

Before commencing work all personnel must be inducted onto the site. This involves viewing a professionally made video then reading through several Safe Work Method Statements (SWMS) with the Site Supervisor and 'signing on' to them. A booklet is also provided that provides further detail on the topics discussed in the video, which personnel are to keep in their vehicle and refer to later.

All these documents provide information about the Environmental Management System (EMS) used on the DWM landfill and DORF sites, and the higher risk (to the environment) activities on site. After inductions personnel working on site are required to participate in an EMS Awareness session, to develop further understanding of the legal requirements of DWM's operation and expand their general knowledge.

Regarding signing on to SWMS, this is a requirement for high-risk construction activities and are used by DWM for all activities where control measures are required to minimise risk, whether they be ongoing day-to-day tasks or one-off project works.

To ensure that the EMS is a relevant and useful tool for daily operations, DWM expands on the SWMS work health and safety format by requiring that staff writing the SWMS consider the steps involved in the activity and any potential environmental impacts it may have. Any necessary control measures are then listed for site personnel to understand and adhere to.

In addition to this, the site contractor has regular toolbox meetings using a template form to provide an agenda and record the minutes. This agenda includes the review of one EMS Work Instruction, one EMS Procedure and one SWMS. This assists in maintaining awareness of the system and giving staff a broader understanding of site operations other than their specific role.

15. COMMUNITY ENGAGEMENT

Where required, formal community engagement was entered into during the reporting period relating to the progress of the DOT Project, this included notification to neighbouring properties relating to construction activities as required by the EPA and also providing updates on the progress of the project. Informal engagement activities include site tours for interested parties. DWM regularly reports to its four owner-Councils, and Board, to provide information about the activities at the DORF. Members of these groups can then disseminate information as they see fit.

16. ENVIRONMENTAL MANAGEMENT OVER AND ABOVE PERMIT REQUIREMENTS

Since July 2008, DWM has implemented an Environmental Management System (EMS) to ensure that best practice operations are carried out on both the landfill and composting sites. There have been numerous benefits to DWM by implementing this system, and the significant effort it takes to maintain a certified system continues to be supported by the Owner-Councils and the Board.

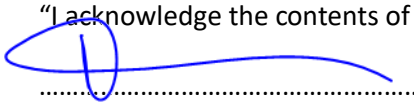
The overall aim of the EMS is to ensure that the site is operated at the optimum level of environmental management, but as noted previously DWM incorporate work health and safety requirements, to ensure an active and relevant system.

17. COMMITMENTS TO IMPROVE FUTURE ENVIRONMENTAL PERFORMANCE

All personnel involved with DWM – Board, staff, and site contractors – are committed to continual improvement and refinement of the Environmental Management System (EMS) as the best method of assessing and managing environmental issues.

18. STATEMENT BY CHIEF EXECUTIVE OFFICER

"I acknowledge the contents of this Public Environmental Report"



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Veronica Schilling

CEO

Dulverton Waste Management

Date: 07/08/2023

Environmental Policy

OBJECTIVE

Dulverton Waste Management (DWM) is committed to responsible environment management and the pursuit of providing a safe and sustainable waste management, minimisation and recycling service for our community.

LEGISLATION

Environmental Management & Pollution Control Act 1994 (Tas)

DEFINITIONS

Environmental Management System (EMS)	An Environmental Management System (EMS) is a structured management tool which provides a methodical approach to planning, implementing and reviewing the performance of an organisation in regard to its compliance obligations for environmental management. It follows the standards set out in AS/NZS ISO 14001:2015, and is regularly audited independently to assess adherence and for ongoing improvement.
Stakeholders	a person or group that has an investment, share, or interest in something, as a business or industry.

RESPONSIBILITIES

Board:

- To provide the financial and human resources required to support the objectives of this policy.

Chief Executive Officer:

- To provide the systems and procedures to support the objectives of this policy

Employees, Contractors & Sub-Contractors:

- To comply with all the systems and procedures relating to the environment;
- To at all times consider the effect of an activity on the environment; and
- To discontinue an activity if it becomes apparent that environmental harm may occur.

POLICY STATEMENT

DWM is committed to:

- Playing a leading role in promoting best practice in our industry;
- Protection of the local environment and minimisation of waste;
- Compliance with applicable compliance obligations and with other requirements to which the organisation subscribes;
- Communicating with all persons working for or on behalf of the organization the requirements of the Environmental Management System (EMS);
- Minimising and where possible avoid adverse impacts on our stakeholders, environment and social surrounds;
- The reduction of suitable waste stream volumes to landfill, through effective reuse, composting and minimization strategies; and
- Understanding and minimising our greenhouse gas contribution

DWM will:

- Actively pursue continual improvement in environmental management;
- Provide a framework for setting and reviewing environmental objectives and targets;
- Implement and maintain an Environmental Management System (EMS) certified to ISO 14001:2015; and
- Regularly review its environmental performance through:
    - Management review of the system;
    - Progress against objectives and targets; and
    - An internal and external audit.

OTHER KEY RELATED POLICIES

Nil

REVIEW

This policy will be reviewed every four years or as required by the Board.

REFERENCE			
APPROVED BY:	DWM Board of Directors	**MINUTE NO:**	MFID 1570156
APPROVAL DATE:	12th August 2020	**REVIEW DATE:**	by September 2024

ENVIRONMENT PROTECTION NOTICE No. 7852/1

Issued under the *Environmental Management and Pollution Control Act 1994*

Issued to: **DULVERTON REGIONAL WASTE MANAGEMENT AUTHORITY**
ABN 11 784 477 180
LEVEL 1, 35 STEWART ST
DEVONPORT TAS 7300

Environmentally Relevant Activity: **The operation of a composting facility (ACTIVITY TYPE: Resource Recovery)**
DULVERTON COMPOSTING OPERATION, DAWSONS SIDING RD
DULVERTON TAS 7310

GROUNDS

I, Wes Ford, Director, Environment Protection Authority, (the Director), being satisfied in accordance with section 44(1)(d) of the *Environmental Management and Pollution Control Act 1994* (EMPCA) that in relation to the above-mentioned environmentally relevant activity that it is desirable to vary the conditions of a permit (see table below) hereby issue this environment protection notice to the above-mentioned person as the person responsible for the activity.

Permit No.	Date Granted	Granted By
DA73/02	18 November 2003	Latrobe Council

PARTICULARS

The particulars of the grounds upon which this notice is issued are:

1 A regulatory limit which sets the maximum scale or throughput of the activity is needed because any increase in scale or throughput may result in additional environmental impacts or emissions that were not considered at the time of granting of the permit.

2 Permit conditions need to be varied to reflect contemporary management practices, specifically that an Environmental Management System is in place.

3 It is desirable to add a condition requiring odour management. Odour management consideration is part of best practice environmental management.

4 The permit conditions need to be varied to ensure that there are adequate safeguards against environmental harm or nuisance being caused by the activity.

5 A condition requiring notification of a change of ownership of The Land is needed because this Notice may affect title to land and the new owner's interests may be affected by pollutants emitted or disturbed by the activity.

6 The permit conditions need to be varied to reflect current or updated terminology and/or to clarify the meaning of the conditions.

7 Permit conditions need to be varied to more specifically identify when approvals to effect change are required.

8 The permit does not include a condition requiring the person responsible to take action to minimise environmental harm if an incident occurs.

9 It is necessary to add a condition requiring a public complaints register to be maintained so that the Director can appraise the frequency and characteristics of complaints which may indicate nuisance should any complaints be received.

10 It is necessary to add a condition requiring the submission of a publicly available Annual Environmental Review to inform the Director and the public of the environmental performance of the activity.

11 It is desirable to add conditions ensuring that decommissioning and rehabilitation is undertaken, and is done in a timely, planned and approved manner to minimise environmental harm.

12 A condition is included to require fire-fighting wastewater that is generated from on-site firefighting to be managed to prevent environmental harm.

13 A condition is included to require the maintenance of existing perimeter drains to ensure that their performance is not impeded.

14 The permit does not contain conditions relating to adequate management of stormwater on The Land. It is necessary to add a condition requiring adequate management of stormwater to prevent environmental harm and/or nuisance being caused by stormwater leaving The Land.

15 Permit conditions need to be varied to identify overall management objectives for the management of leachate.

16 Permit conditions need to be varied to combine leachate pond management requirements into a single cohesive condition.

17 A condition is included to ensure adequate monitoring of the soils and groundwater within the irrigation area and to keep the Director informed of results.

18 Permit conditions need to be varied to update conditions and requirements relating to fire management at the activity.

19 Permit conditions need to be varied to ensure that weeds are adequately controlled on the land and to replace a completed requirement.

20 The permit does not contain conditions in relation to dealing with environmentally hazardous substances. Environmentally hazardous substances are likely to be stored and handled on The Land and current best practice environmental management necessitates conditions to be varied for the storage and handling of environmentally hazardous substances.

21 The permit does not have a condition requiring the provision of spill kits. It is desirable to add a condition requiring provision, in suitable locations, of spill kits appropriate for the environmental hazardous substances held on The Land for use in any incident to minimise the emissions of a pollutant into the environment.

22 Permit conditions need to be varied to update requirements for the treatment of samples obtained for monitoring to achieve best practice environmental management.

23 Monitoring and reporting requirements set out in the permit conditions need to be varied to reflect current best practice environmental management and to require accurate measurement of emissions and their impact upon the receiving environment and to consistently inform the Director of the results of monitoring

24 Permit conditions need to be varied to include requirements for the signage of monitoring points.

25 Permit conditions need to be varied to update requirements relating to the monitoring of surface waters, leachate, irrigation area and groundwater to reflect current operating conditions and best practice environmental management and to keep the Director informed of results.

26 Permit conditions need to be varied to update requirements for the monitoring of the composting process, to verify that optimal conditions for composting are being maintained.

27 Permit conditions relating to noise emissions need to be updated to comply with current terminology, and best practice environmental management.

28 It is desirable to add conditions setting noise emission limits, in accordance with the Environment Protection Policy (Noise) 2009Permit conditions relating to hours of operation need to be updated to comply with current terminology and operating conditions.

29 Permit conditions relating to receivable wastes need to updated to include all materials currently considered acceptable for composting at the activity.

30 The permit does not include any fencing requirement. Fencing of the activity is required to discourage unauthorised persons from entering the site and coming into contact with sewage or any hazardous substance.

31 Permit conditions relating to the management of windrows need to varied to reflect current understanding of the environmental risks posed by composting and appropriate measures to reduce these risks.

32 Permit conditions relating to staffing requirements need to be varied to reflect a better understanding of the environmental risk associated with the activity. Trained staff need to be on site at all times during operational hours.

33 Permit conditions relating to site hygiene and biosecurity need to be varied to reflect changes to materials accepted on site and the understanding of the environmental risks posed by the activity.

34 It is necessary to remove condition C2 of permit No. DA73/02 because it details requirements that have been fulfilled and are no longer required.

DEFINITIONS

Unless the contrary appears, words and expressions used in this Notice have the meaning given to them in Schedule 1 of this Notice and in the EMPCA. If there is any inconsistency between a definition in the EMPCA and a definition in this Notice, the EMPCA prevails to the extent of the inconsistency.

REQUIREMENTS

The person responsible for the activity must comply with the varied permit conditions as set out in Schedule 2 of this Notice.

INFORMATION

Attention is drawn to **Schedule 3**, which contains important additional information.

PENALTIES

If a person bound by an environment protection notice contravenes a requirement of the notice, that person is guilty of an offence and is liable on summary conviction to a penalty not exceeding 1000 penalty units in the case of a body corporate or 500 penalty units in any other case (at the time of issuance of this Notice one penalty unit is equal to $154.00).

NOTICE TAKES EFFECT

This notice takes effect on the date on which it is served upon you.

APPEAL RIGHTS

You may appeal to the Appeal Tribunal against this notice, or against any requirement contained in the notice, within 14 days from the date on which the notice is served, by writing to:

The Chairperson
Resource Management and Planning Appeal Tribunal
GPO Box 2036
Hobart TAS 7001

Signed: _____

DIRECTOR, ENVIRONMENT PROTECTION AUTHORITY

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Attachments

Schedule 1: Definitions

Activity means any environmentally relevant activity (as defined in Section 3 of EMPCA) to which this document relates, and includes more than one such activity.

Authorized Officer means an authorized officer under section 20 of EMPCA.

Classification And Management Of Contaminated Soil For Disposal means the document *Information Bulletin No.105 Classification and Management of Contaminated Soil for Disposal* published by the Department of Primary Industries, Parks, Water and Environment in November 2012, and includes any subsequent versions of this document.

Compost means material produced by the controlled microbiological transformation of organic materials under aerobic and thermophilic conditions.

Compost Irrigation Management Plan means the document entitled Compost Irrigation Management Plan, prepared by SEMF and dated 2 February 2011.

Controlled Waste has the meaning described in Section 3(1) of EMPCA.

Director means the Director, Environment Protection Authority holding office under Section 18 of EMPCA and includes a person authorised in writing by the Director to exercise a power or function on the Director's behalf.

DRP means Decommissioning and Rehabilitation Plan.

EMPCA means the *Environmental Management and Pollution Control Act 1994*.

Environmental Harm and **Material Environmental Harm** and **Serious Environmental Harm** each have the meanings ascribed to them in Section 5 of EMPCA.

Environmental Nuisance and **Pollutant** each have the meanings ascribed to them in Section 3 of EMPCA.

Environmentally Hazardous Material means any substance or mixture of substances of a nature or held in quantities which present a reasonably foreseeable risk of causing serious or material environmental harm if released to the environment and includes fuels, oils, waste and chemicals but excludes sewage.

Irrigation Area means the area of pine plantation labelled Irrigation Area in Attachment 1.

Leachate means any liquid that is either released by or has percolated through waste, compost or raw materials.

Leachate Storage Pond means the pond used for the storage of leachate and labelled as Leachate Pond in Attachment 2 of this Notice.

Liquid Waste means any waste that is in liquid form or is substantially comprised of free liquids or is not spadeable (able to be lifted and moved in heaps with a spade).

Noise Sensitive Premises means residences and residential zones (whether occupied or not), schools, hospitals, caravan parks and similar land uses involving the presence of individual people for extended periods, except in the course of their employment or for recreation.

Person Responsible is any person who is or was responsible for the environmentally relevant activity to which this document relates and includes the officers, employees, contractors, joint venture partners and agents of that person, and includes a body corporate.

Pest Animal means any animal (including insects) whose activity has the potential to cause environmental harm or nuisance.

Putrescible means materials that are capable of rapid biological decay or rotting.

Reporting Period means the 12 months ending on 18 November each year.

Stormwater means water traversing the surface of the land as a result of rainfall.

Tasmanian Noise Measurement Procedures Manual means the Noise Measurement Procedures Manual referred to in regulation 4 of the *Environmental Management and Pollution Control (Miscellaneous Noise) Regulations 2014*.

The Land means the land on which the activity to which this document relates may be carried out, and includes: buildings and other structures permanently fixed to the land, any part of the land covered with water, and any water covering the land. The Land falls within the area defined by:

1. Certificates of Title 131878/1 and 153999/1; and
2. Further delineated at Attachment 1 of this Notice.
3. Grid reference centroid: 448825E 5429024N

Vectors means animals capable of transmitting an infection from one host to another.

Wastewater means spent or used water (whether from industrial or domestic sources) containing a pollutant and includes stormwater which becomes mixed with wastewater.

Water Sensitive Urban Design. means the management of stormwater in the landscape rather than drain it all to waterways. This is done with the aim of protecting and improving waterway health by mimicking the natural water cycle as closely as possible

Weed means a declared weed as defined in the *Weed Management Act 1999*.

Schedule 2: Conditions

Maximum Quantities

Q1 Regulatory limits

1 The activity must not exceed the following limits (annual fees are derived from these figures):

1.1 25,000 tonnes per year of production of compost or mushroom substrate.

General

G1 Access to and awareness of conditions and associated documents

A copy of these conditions and any associated documents referred to in these conditions must be held in a location that is known to and accessible to the person responsible for the activity. The person responsible for the activity must ensure that all persons who are responsible for undertaking work on The Land, including contractors and sub-contractors, are familiar with these conditions to the extent relevant to their work.

G2 No changes without approval

1 The following changes, if they may cause or increase the emission of a pollutant which may cause material or serious environmental harm or environmental nuisance, must only take place in relation to the activity if such changes have been approved in writing by the EPA Board following its assessment of an application for a permit under the *Land Use Planning and Approvals Act 1993*, or approved in writing by the Director:

1.1 a change to a process used in the course of carrying out the activity; or

1.2 the construction, installation, alteration or removal of any structure or equipment used in the course of carrying out the activity; or

1.3 a change in the quantity or characteristics of materials used in the course of carrying out the activity.

G3 Incident response

If an incident causing or threatening environmental nuisance, serious environmental harm or material environmental harm from pollution occurs in the course of the activity, then the person responsible for the activity must immediately take all reasonable and practicable action to minimise any adverse environmental effects from the incident.

G4 Change of ownership

If the owner of The Land upon which the activity is carried out changes or is to change, then, as soon as reasonably practicable but no later than 30 days after becoming aware of the change or intended change in the ownership of The Land, the person responsible must notify the Director in writing of the change or intended change of ownership.

G5 Complaints Register

1 A public complaints register must be maintained and made available for inspection by an Authorized Officer upon request. The public complaints register must, as a minimum, record the following detail in relation to each complaint received in which it is alleged that environmental harm (including an environmental nuisance) has been caused by the activity:

1.1 the time at which the complaint was received;

1.2 contact details for the complainant (where provided);

1.3 the subject-matter of the complaint;

1.4 any investigations undertaken with regard to the complaint; and

1.5 the manner in which the complaint was managed, including any mitigation measures implemented.

2 Complaint records must be maintained for a period of at least 3 years.

G6 Annual Environmental Review

1 Unless otherwise specified in writing by the Director, a publicly available Annual Environmental Review for the activity must be submitted to the Director each year within three months of the end of the reporting period. Without limitation, each Annual Environmental Review must include the following information:

1.1 a statement by the General Manager, Chief Executive Officer or equivalent for the activity acknowledging the contents of the Annual Environmental Review;

1.2 subject to the *Personal Information Protection Act 2004*, a list of all complaints received from the public during the reporting period concerning actual or potential environmental harm or environmental nuisance caused by the activity and a description of any actions taken as a result of those complaints;

1.3 details of environment-related procedural or process changes that have been implemented during the reporting period;

1.4 a summary of the amounts (tonnes or litres) of both solid and liquid wastes produced and treatment methods implemented during the reporting period. Initiatives or programs planned to avoid, minimise, re-use, or recycle such wastes over the next reporting period should be detailed;

1.5 details of all non-trivial environmental incidents and/or incidents of non compliance with permit or environment protection notice conditions that occurred during the reporting period, and any mitigative or preventative actions that have resulted from such incidents;

1.6 a summary of the monitoring data and record keeping required by these conditions. This information should be presented in graphical form where possible, including comparison with the results of at least the preceding reporting period. Special causes and system changes that have impacted on the parameters monitored must be noted. Explanation of significant deviations between actual results and any predictions made in previous reports must be provided;

1.7 identification of breaches of limits specified in these conditions and significant variations from predicted results contained in any relevant DPEMP or EMP, an explanation of why each identified breach of specified limits or variation from predictions occurred and details of the actions taken in response to each identified breach of limits or variance from predictions;

1.8 a list of any issues, not discussed elsewhere in the report, that must be addressed to improve compliance with these conditions, and the actions that are proposed to address any such issues;

1.9 a summary of fulfilment of environmental commitments made for the reporting period. This summary must include indication of results of the actions implemented and explanation of any failures to achieve such commitments; and

1.10 a summary of any community consultation and communication undertaken during the reporting period.

G7 Environmental Management Plan

1 Within 15 months of the date on which these conditions take effect, or by a date otherwise specified in writing by the Director, an Environmental Management Plan ('EMP') must be submitted to the Director for approval.

2 The EMP must detail prescriptions, consistent with these conditions, for the prevention or mitigation of environmental harm and environmental nuisance arising from the activity.

3 The EMP must include specific Plans, as detailed in Attachment 3.

4 In preparing the EMP the person responsible must take into account environment related complaints, incidents and changes to the activity over the preceding 3 years.

5 The EMP must include plans clearly showing the actual location of all infrastructure associated with the activity including buildings, machinery, roads, stockpiles and drainage controls. These plans must also depict the current and proposed future extent of disturbance associated with the activity.

6 The approved EMP, as amended from time to time with the written agreement of the Director, must be implemented by the person responsible from the date of the Director's approval.

Atmospheric

A1 Covering of vehicles
Vehicles carrying loads containing material which may blow or spill must be equipped with effective control measures to prevent the escape of the materials from the vehicles when they leave The Land. Effective control measures may include tarpaulins and load dampening.

A2 Control of dust emissions
Dust emissions from The Land must be controlled to the extent necessary to prevent environmental nuisance beyond the boundary of The Land.

A3 Odour management
The person responsible must institute such odour management measures as are necessary to prevent odours causing environmental nuisance beyond the boundary of The Land.

Decommissioning And Rehabilitation

DC1 Notification of cessation
Within 30 days of becoming aware of any event or decision which is likely to give rise to the permanent cessation of the activity, the person responsible for the activity must notify the Director in writing of that event or decision. The notice must specify the date upon which the activity is expected to cease or has ceased.

DC2 DRP requirements
Unless otherwise approved in writing by the Director, a Decommissioning and Rehabilitation Plan (DRP) for the activity must be submitted for approval to the Director within 30 days of the Director being notified of the planned cessation of the activity or by a date specified in writing by the Director. The DRP must be prepared in accordance with any guidelines provided by the Director.

DC3 Rehabilitation following cessation

1 Following permanent cessation of the activity, and unless otherwise approved in writing by the Director, The Land must be rehabilitated including:

1.1 stabilisation of any land surfaces that may be subject to erosion;

1.2 removal or mitigation of all environmental hazards or land contamination, that might pose an on-going risk of causing environmental harm; and

1.3 decommissioning of any equipment that has not been removed.

2 Where a Decommissioning and Rehabilitation Plan (DRP) has been approved by the Director, decommissioning and rehabilitation must be carried out in accordance with that plan, as may be amended from time to time with written approval of the Director.

Discharge

DS1 Fire fighting wastewater

In the event of a fire, potentially contaminated wastewater arising from fire fighting must be treated on The Land to the satisfaction of the Director or removed from the site by a person holding all necessary approvals for such transport.

DS2 Maintenance of Perimeter Drains

1 Perimeter drains as identified in Attachment 2 of this Notice must be maintained to prevent stormwater from entering the area used or disturbed in carrying out the activity. All reasonable measures must be implemented to ensure that sediment transported along these drains remains on The Land. Such measures may include provision of strategically located sediment fences, appropriately sized and maintained sediment settling ponds, vegetated swales, detention basins and other measures designed and operated in accordance with the principles of Water Sensitive Urban Design.

2 Drains must have sufficient capacity to contain run-off that could reasonably be expected to arise during a 1 in 10 year 24 hour storm event. Maintenance activities must be undertaken regularly to ensure that this capacity does not diminish.

DS3 Stormwater

1 Polluted stormwater that will be discharged from The Land must be collected and treated prior to discharge to the extent necessary to prevent serious or material environmental harm, or environmental nuisance.

2 Notwithstanding the above, all stormwater that is discharged from The Land must not carry pollutants such as sediment, oil and grease in quantities or concentrations that are likely to degrade the visual quality of any receiving waters outside the Land.

3 All reasonable measures must be implemented to ensure that solids entrained in stormwater are retained on The Land. Such measures may include appropriately sized and maintained sediment settling ponds or detention basins.

4 Stormwater discharged in accordance with this condition must not be directed to sewer without the approval of the operator of the sewerage system.

Effluent Disposal

E1 Leachate Management

1 The leachate collection system must be managed to prevent leachate generated by the composting operation from polluting groundwater or surface waters.

2 Leachate on The Land must be managed such that:

2.1 it does not cause an odour nuisance beyond the boundary of The Land; and

2.2 human contact with leachate is minimised.

E2 Leachate Storage Pond Management

1 Uncontaminated stormwater must be prevented as far as practicable from entering the leachate stream.

2 All leachate and contaminated stormwater must be directed to the leachate storage pond.

3 The available capacity (freeboard) of the leachate storage pond must be maintained to:

3.1 eliminate the transfer of leachate to the irrigation area during periods of soil water saturation or near saturation;and

3.2 retain sufficient capacity to hold all leachate arising from a 1 in 10 year 24 hour storm event.

4 If the storage capacity of the leachate storage pond reduces to a point where it is likely to breach the above requirements, the person responsible must submit to the Director for approval a proposal to ensure that the required storage capacity will be achieved and maintained within a reasonable timeframe while addressing potential environmental impacts. The person responsible must implement any such proposal approved by the Director.

5 Water from the leachate storage pond must not be released into surface water bodies or streams.

E3 Sludge Management

1 The leachate storage pond must be managed by periodic desludging to maintain the design capacity of the pond to:

1.1 Allow settling of solid matter entrained in the leachate; and

1.2 Prevent overflow and loss of leachate to the environment.

2 Sludge removed from the leachate storage pond must be sampled and tested to determine the level of contamination and disposed of in accordance with the requirements of *Classification and Management of Contaminated Soils for Disposal.*

E4 Irrigation Area Management

1 During periods of discharge of leachate to the irrigation area, weekly visual assessments must be conducted on the irrigation area and any noticeable impacts such as damage to soil and plants or evidence of pooling or run-off from the site must be recorded.

2 Parameters listed in Column 1 of Table 3 must not exceed the values given in Column 3 in leachate water to be discharged to the irrigation area.

3 The annual loading of contaminants listed in Column 1 of Table 3 applied to the irrigation area must not exceed the values given in Column 4.

4 If the accumulated metal content in the upper 15 cm of soil for any metal listed in column 1 of Table 3 exceeds the Cumulative Contaminant Loading specified in Column 5 of Table 3 then the area must be rested and remediated in a manner approved by the Director.

5 The hydraulic load applied to the irrigation area must be recorded. Unless otherwise approved in writing by the Director, the annual application rate for any given area must not exceed 3 ML/ha, reducing to 2ML/ha in a 1:10 wet year and increasing to 4 ML/ha in a 1:10 dry year.

Fire Management

FM1 Fire management

1 Fire control measures on The Land must be to the satisfaction of the Tasmania Fire Service (TFS). Correspondence from the TFS indicating the suitability of fire control measures must be submitted to the Director within 6 months of the date on which these conditions take effect.

2 Fires occurring on The Land must be extinguished as soon as possible using all practical means available.

3 The lighting of fires on The Land is not permitted.

4 The person responsible must make all reasonable efforts to prevent unauthorised ignition of green waste stockpiles.

Flora And Fauna

FF1 Weed Control

Weeds must be controlled on site to the extent necessary to prevent the establishment of seeding populations and to prevent their spread off site.

Hazardous Substances

H1 Storage and handling of hazardous materials

1 Unless otherwise approved in writing by the Director, environmentally hazardous materials held on The Land must be:

1.1 located within impervious bunded areas, spill trays or other containment systems; and

1.2 managed to prevent unauthorised discharge, emission or deposition of pollutants:

1.2.1 to soils within the boundary of The Land in a manner that is likely to cause serious environmental harm;

1.2.2 to groundwater;

1.2.3 to waterways; or

1.2.4 beyond the boundary of The Land.

H2 Spill kits

Spill kits appropriate for the types and volumes of materials handled on The Land must be kept in appropriate locations to assist with the containment of spilt environmentally hazardous materials.

Monitoring

M1 Dealing with samples obtained for monitoring

1 Any sample or measurement required to be obtained under these conditions must be taken and processed in accordance with the following:

1.1 Australian Standards, NATA approved methods, the American Public Health Association Standard Methods for the Analysis of Water and Waste Water or other standard(s) approved in writing by the Director;

1.2 measurement equipment must be maintained and operated in accordance with the manufacturer's specifications;

1.3 samples must be tested in a laboratory accredited by the National Association of Testing Authorities (NATA), or a laboratory approved in writing by the Director, for the specified test;

1.4 results of measurements and analysis of samples and details of methods employed in taking measurements and samples must be retained for at least three years after the date of collection; and

1.5 noise measurements must be undertaken in accordance with the Tasmanian Noise Measurement Procedures Manual.

M2 Monitoring, record keeping and reporting

Unless otherwise approved in writing by the Director, the results of laboratory analysis of samples collected in the course of monitoring required under these conditions must be submitted to the Director in the Annual Environmental Review following completion of those analyses by the laboratory.

M3 Signage of monitoring points

With the exception of open water sampling, all monitoring points must be clearly marked to indicate the location and name of the monitoring point.

M4 Stormwater monitoring

1 Unless otherwise approved in writing by the Director, representative samples of stormwater must be collected at the point of discharge from the Land, identified as "Surface Water Discharge Point" in Attachment 2, at 3 monthly intervals and must be analysed or measured for the parameters listed in Column 1 of Table 1 at the frequency specified in Column 2 of Table 1.

2 If there is no flow at the Surface Water Discharge Point at the time of sampling then the sample must be collected at the first occurrence of flow thereafter.

3 Results of the above monitoring must be included in the subsequent Annual Environment Review.

4 If stormwater has become contaminated with leachate, or if required in writing by the Director, additional sampling and testing of the parameters listed in Column 1 of Table 1 must be undertaken at the locations and frequency specified by the Director and the results must be submitted to the Director within 30 days of receipt by the person responsible.

5 Stormwater and groundwater monitoring programs must be continued for a period of five years from the issue of this Notice, after which the person responsible may apply to the Director to alter the monitoring program.

6 **Table 1 Stormwater Monitoring**

Column 1	Column 2
MONITORING PARAMETER AND REPORTING UNITS	MONITORING FREQUENCY
pH	At least once per three monthly period, when water is flowing.
BOD (mgO_2/L)	At least once per three monthly period, when water is flowing.
TSS (mg/L)	At least once per three monthly period, when water is flowing.
Conductivity (Ds/M)	At least once per three monthly period, when water is flowing.
Total Nitrogen (mg/L)	At least once per three monthly period, when water is flowing.
Ammonia (mg/L)	At least once per three monthly period, when water is flowing.
NOx (mg/L)	At least once per three monthly period, when water is flowing.
Total Phosphorus (mg/L)	At least once per three monthly period, when water is flowing.
Dissolved Free Phosphorus (mg/L)	At least once per three monthly period, when water is flowing.

M5 Leachate monitoring

1 Unless otherwise approved in writing by the Director, representative samples of leachate must be collected and must be analysed or measured for the parameters listed in Column 1 of Table 2 at the the following times:

1.1 When a change in raw materials or processes may result in changes to the leachate;

1.2 Prior to the commencement of seasonal irrigation;

1.3 When required in writing by the Director.

2 Unless otherwise required in writing by the Director, all metals are to be analysed for total concentration.

3 Results of analysis and measurements must be submitted to the Director within 30 days of receipt by the person responsible.

4 Table 2 Leachate Monitoring

Column 1
MONITORING PARAMETERS
pH
Conductivity (uS/cm)
Alkalinity (as $CaCO_3$) (mg/L)
Total Nitrogen (mg/L)
Ammonia (ug-N/L)
Nitrate (ug-N/L)
Nitrite (ug-N/L)
Total phosphorus (mg/L)
BOD (mgO_2/L)
Dissolved Oxygen (mg/L)
Total CN (as CN) (mg/L)
Total Iron (Fe) (mg/L)
Aluminium (Al) (mg/L)
Copper (Cu) (mg/L)
Zinc (Zn) (mg/L)
Chromium (Cr) (mg/L)
Manganese (Mn) (mg/L)
Nickel (Ni) (mg/L)
Lead (Pb) (mg/L)
Cadmium (Cd) (mg/L)
Chloride (mg/L)
Sulphate (mg/L)
Sodium (Na) (mg/L)
Potassium (K) (mg/L)
Magnesium (Mg) (mg/L)
Arsenic (As) (mg/L)
Mercury (Hg) (mg/L)
Selenium (Se) (mg/L)
TPH (mg/L)

M6 Irrigation Area Monitoring

1 Unless otherwise approved in writing by the Director, soil to be irrigated must be sampled and analysed for the parameters listed in Column 1 of Table 3 at the rate of 2 composite soil samples per irrigated hectare at the frequency specified in column 2.

2 Water with electrical conductivity greater than 2,300 uS/cm must not be discharged to the irrigation area.

3 Water with a BOD value greater than 75 mg/L must not be discharged into the irrigation area.

4 **Table 3 Irrigation Area Monitoring and Limits**

Column 1	Column 2	Column 3	Column 4	Column 5
Monitoring Parameter	Sampling Frequency	Maximum Concentration in Irrigation Water (mg/L)*	Annual Loading in top 15 cm of soil (g/ha)**	Soil Cumulative Contaminant Loading (kg/ha)*
Arsenic (As)	Annually	2.0	6,000	20
Cadmium (Cd)	Annually	0.05	150	2
Copper (Cu)	Annually	5.0	15,000	140
Lead (Pb)	Annually	20.0	60,000	260
Mercury (Hg)	Annually	0.002	6	2
Nickel (Ni)	Annually	2.0	6,000	85
Selenium (Se)	Annually	0.05	150	10
Zinc (Zn)	Annually	5.0	15,000	300
Magnesium (mg)	Annually			
Potassium (K)	Annually			
Chlorine (Cl)	Annually			
Calcium (Ca)	Annually			
Electrical Conductivity (uS/cm)	Annually			
BOD (mgO2/L)	Annually	75		

*Values Derived from Table 4-2 of *Environmental Guidelines for the Use of Recycled water In Tasmania (DPIWE December 2002).*

**Assuming an average annual transfer of 3ML/ha of leachate.

M7 Groundwater monitoring

1 Unless otherwise approved in writing by the Director, groundwater bores identified in Attachment 2 of this Notice must be sampled and tested for the parameters listed in Column 1 of Table 4 "Groundwater Monitoring" monitored in accordance with Column 2 of Table 4.

2 To prevent potential damage or loss of groundwater bores during composting operations or surface drainage improvements; an area must be cleared around each monitoring site with markers installed to ensure they remain clearly visible.

3 **Table 4. Groundwater Monitoring**

Column 1	Column 2
MONITORING PARAMETERS (reporting units)	**SAMPLING FREQUENCY**
Ground water depth (m)	Within 6 weeks of issue of this Notice then at 6 month intervals
Co ordinates, GDA 94 Zone 55 - Easting, Northing, AHD	Within 6 weeks of issue of this Notice
pH	Within 6 weeks of issue of this Notice then at 6 month intervals
Conductivity (uS/cm)	Within 6 weeks of issue of this Notice then at 6 month intervals
Total Dissolved Salts (TDS) (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Total Nitrogen(ug-N/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Ammonia (mg-N/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Nitrate (mg-N/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Nitrite (mg-N/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Total phosphorus (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Orthophosphate (mg-P/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Dissolved Organic C (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
BOD (mgO_2/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Total and dissolved (Fe) (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Copper (Cu) (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Zinc (Zn) (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Chromium (Cr) (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Manganese (Mn) (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Nickel (Ni) (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Lead (Pb) (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Cadmium (Cd) (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Chloride (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Sulphate (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Sodium (Na) (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Potassium (K) (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Magnesium (Mg) (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Arsenic (As) (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Mercury (Hg) (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Selenium (Se) (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
TPH (mg/kg)	Within 6 weeks of issue of this Notice then at 6 month intervals

M8 Monitoring of Compost

1 If required in writing by the Director the parameters listed in Column 1 of Table 5 must be monitored in the compost heaps and logged as specified by the Director.

2 All monitoring data collected in accordance with this condition, along with the protocols involved in conducting monitoring, must be made available to an authorised officer upon request.

2.1 Table 5. Monitoring requirements and operational limits for composting.

Column 1	Column 2	Column 3
Monitoring Parameter	Requirement	Sampling Frequency
Moisture Content (%)	Between 45-65 %	As required in writing by the Director, but not in excess of the requirements of AS4454-2012 Composts, soil conditioners and mulches.
Oxygen Content (%)	>5%.	As required in writing by the Director, but not in excess of the requirements of AS4454-2012 Composts, soil conditioners and mulches.
Carbon:Nitrogen ratio	>15:1	As required in writing by the Director, but not in excess of the requirements of AS4454-2012 Composts, soil conditioners and mulches.
Pile Temperature (° C)	Temperatures > 55 degrees C for three days prior to turning.	As required in writing by the Director, but not in excess of the requirements of AS4454-2012 Composts, soil conditioners and mulches.

Noise Control

N1 Noise emission limits

1 Noise emissions from the activity when measured at any noise sensitive premises in other ownership and expressed as the equivalent continuous A-weighted sound pressure level must not exceed:

1.1 50 dB(A) between 0700 hours and 1800 hours (Day time); and

1.2 45 dB(A) between 1800 hours and 2200 hours (Evening time); and

1.3 40 dB(A) between 2200 hours and 0700 hours (Night time).

2 Where the combined level of noise from the activity and the normal ambient noise exceeds the noise levels stated above, this condition is not considered to have been breached unless the noise emissions from the activity are audible and exceed the ambient noise levels by at least 5 dB(A).

3 The time interval over which noise levels are averaged must be 10 minutes or an alternative time interval specified in writing by the Director.

4 Measured noise levels must be adjusted for tonality, impulsiveness, modulation and low frequency in accordance with the Tasmanian Noise Measurement Procedures Manual.

5 All methods of measurement must be in accordance with the Tasmanian Noise Measurement Procedures Manual.

Operations

OP1 Receivable wastes

1 Unless otherwise approved in writing by the Director, only the following materials may be received, stored or used in composting on the land:

1.1 Wood fibre, including sawdust;
1.2 Processed plant residues;
1.3 Green waste;
1.4 Whey waste;
1.5 Waste Brewers yeast;
1.6 Animal waste; (including macerated fish wastes)
1.7 Vegetable waste;
1.8 Biosolids classified as Class 1 and Class 2 as defined in the *Tasmanian Biosolids Reuse Guidelines August* 1999, as may be updated from time to time;
1.9 Other organic wastes, that are not controlled wastes; and
1.10 Liquid wastes as follows:
1.10.1 Fonterra wastewater;
1.10.2 leachate from the leachate storage pond on the Land; and
1.10.3 liquid waste of a type approved in writing by the Director.

2 Where there is doubt concerning whether the classification of a waste is a 'controlled waste', then clarification must be sought from the Director.

OP2 Composting

Unless otherwise approved in writing by the Director, composting at the site must be confined to the area designated as the "Composting Area" as identified in Attachment 1.

OP3 Management of Windrows

1 During the thermophilic stage of the composting operation, parameters listed in Column 1 of Table 5 must comply with the requirement listed in Column 2 within the windrows.
2 All putrescible material delivered to the site must be incorporated into the windrows on the day of receipt.
3 Any putrescible material that cannot be incorporated as above must be disposed of to the Dulverton landfill on the day of receipt.
4 Partially composted putrescible materials must not be left lying between windrows, and must be returned into the windrows prior to the end of each working day.
5 Inter-windrow spaces must be maintained in a manner to prevent the feeding or breeding of pest animals and the generation of odour.
6 Machinery capable of turning and mixing the compost must be kept on site at all times. A person capable of operating the machinery must be available for an adequate period to turn and mix compost on a daily basis.

OP4 Management of Compost

1 Compost must be produced under the following conditions:
1.1 Turning of the outer material to the inside of the windrow so that the whole mass is subjected to a minimum of three turns per composting cycle;
1.2 Temperatures maintained to at least 55 degrees C for three consecutive days prior to each turn;
1.3 Windrows must remain aerobic throughout the composting process;
1.4 Composting must be undertaken in such a manner as to restrict the generation of runoff, leachate and odours; and
1.5 Composting must be undertaken in such a manner as to restrict access of vectors and pest animals to the windrows and raw materials.

OP5 Site Hygiene and Biosecurity

1 Washdown facilities for vehicles delivering fish waste must be provided and maintained by the person responsible.

2 Washdown water from fish transport containers and vehicles must not leave the Land and must report to the leachate pond.

3 The premises and equipment, including transport equipment and vehicles, must be maintained and cleaned as necessary to prevent the accumulation of putrescible materials that may give rise to odour, or provide breeding sites for flies.

OP6 Fencing

1 The composting area as shown at Attachment 1 must be contained with in a stock-proof fence sufficient to restrict the entry of native animals.

2 The leachate management infrastructure must be contained within a secure fence sufficient to restrict unauthorised entry.

OP7 Staffing

1 A site supervisor must be in attendance at all times when the site is open and must have the responsibility for the control of the daily operations of composting and monitoring.

2 The site supervisor must have the responsibility and authority to receive, or to reject each load of waste received at the site.

3 The site supervisor must make all reasonable efforts to ensure that there is no public access to the site.

Schedule 3: Information

Legal Obligations

LO1 EMPCA

The activity must be conducted in accordance with the requirements of the *Environmental Management and Pollution Control Act 1994* and Regulations thereunder. The conditions of this document must not be construed as an exemption from any of those requirements.

LO2 Storage and handling of Dangerous Goods, Explosives and dangerous substances

1 The storage, handling and transport of dangerous goods, explosives and dangerous substances must comply with the requirements of relevant State Acts and any regulations thereunder, including:

1.1 *Work Health and Safety Act 2012* and subordinate regulations;

1.2 *Explosives Act 2012* and subordinate regulations; and

1.3 *Dangerous Goods (Road and Rail Transport) Act 2010* and subordinate regulations.

LO3 Change of responsibility

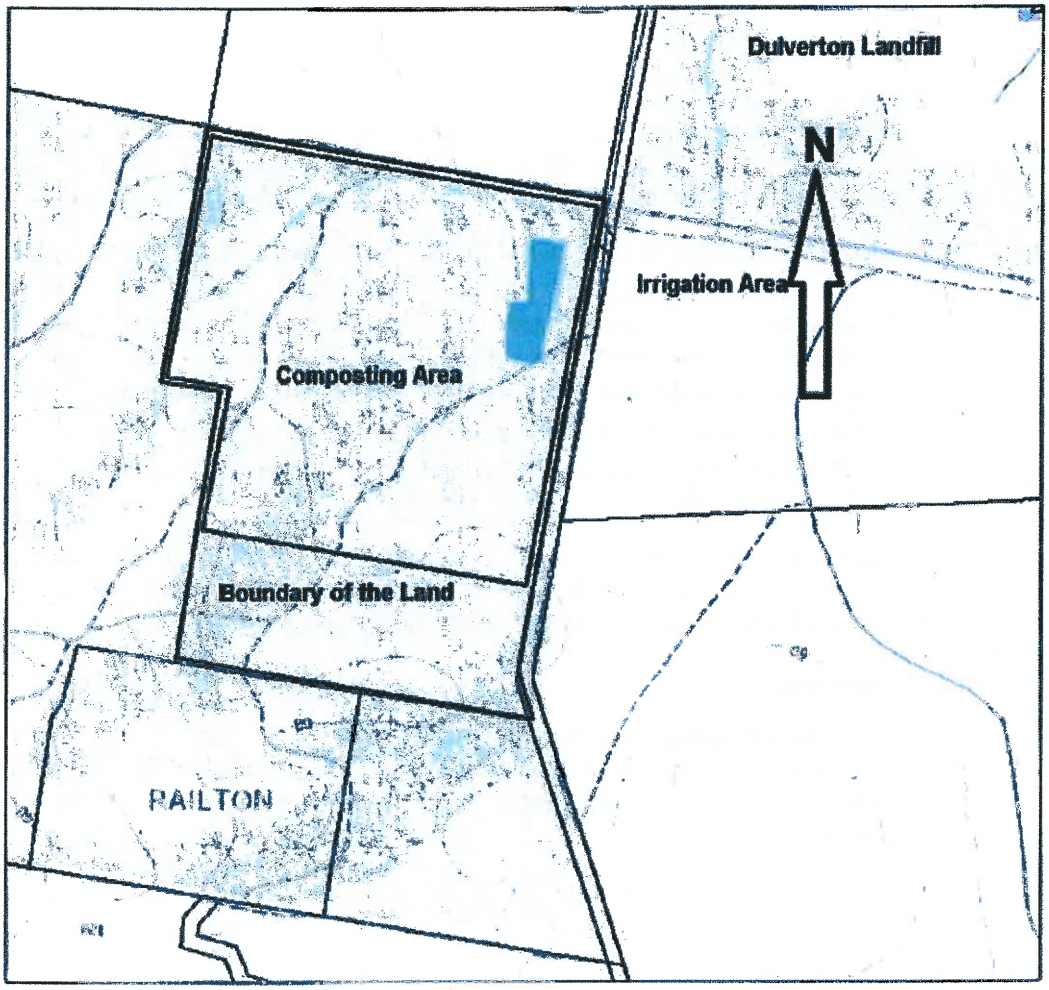
If the person responsible for the activity ceases to be responsible for the activity, they must notify the Director in accordance with Section 45 of the EMPCA.

Other Information

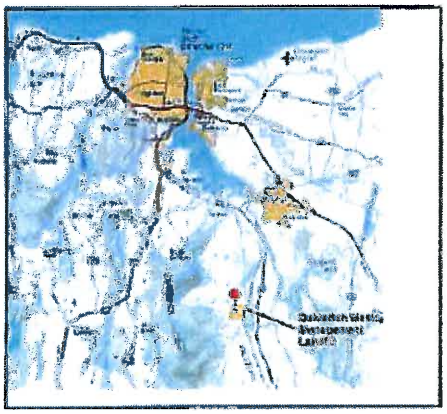
OI1 Notification of incidents under section 32 of EMPCA

Where a person is required by section 32 of EMPCA to notify the Director of the release of a pollutant, the Director can be notified by telephoning 1800 005 171 (a 24-hour emergency telephone number).

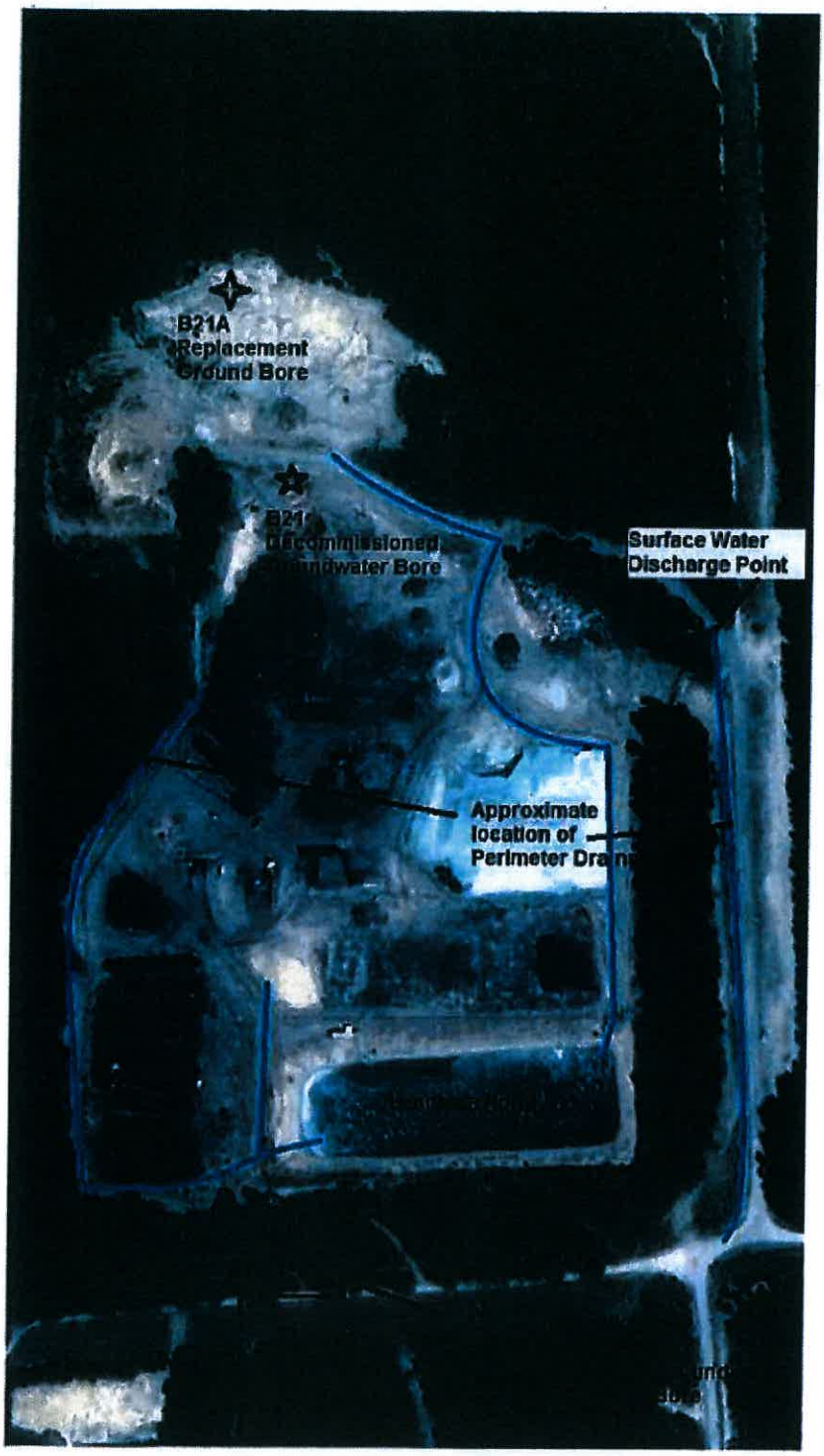
Attachment 1. The Land



Location of the Dulverton Organic Recycling Facility in relation to Devonport



Attachment 2. Location of Groundwater Bores and Drainage Lines



Information Derived from

"Report for Dulverton Landfill Second Stage Hydrogeology Review February 2009"

Attachment 3 Guidelines for EMP Preparation

The following Plans must be included in the EMP.

The plans may be

- Prepared, submitted and updated as a single item;
- Prepared, submitted and updated as individual plans; and may include
- Excerpts from existing Management Plans or Management Systems.

They must be prepared in accordance with best practice environmental management and include, but are not limited to the following content:

Odour Management Plan

The Plan must

1. Identify:
    - All known potential odour sources.
    - Factors that influence the production of odour emissions from these sources.
    - Operational practices to effectively reduce these emissions and to minimise their impacts on neighbours and the local community.
2. Include commitments to implement the identified operational practices to effectively reduce these emissions, and a timetable for the implementation of these practices.

Leachate Management Plan

The Plan must include

1. Details of the leachate collection and management infrastructure for the activity including;
    a. A description of the physical characteristics of the leachate pond, including;
        - depth,
        - volume
        - construction details and
        - other information thought to be relevant
2. Actions to ensure that the system is operated to prevent leachate loss that could reasonably be expected from a 1 in 10 year storm event.
3. A procedure to remove the requirement to discharge into the irrigation area during times of low transpiration and high soil water content.

Karst Management Plan

The Karst Management Plan must include;

1. Initial desktop survey to bring together all existing knowledge of soil and bedrock data and to identify any knowledge gaps that could reasonably present risks to the environmentally correct management of the activity
2. The design and execution of a program to prioritize and address the identified knowledge gaps using field assessments, including but not limited to;
    a. Mapping of soils in the vicinity of the landfill/composting facilities;
    b. Mapping of distribution of bedrock types for the above area; and
    c. Identification of areas of known and potential karst within these bounds.
3. A geological model and a risk assessment that considers sources, pathways and receptors associated with the karst that will be used to better inform future expansion and post closure care of the activity.
4. A Hydrogeological model that determines whether there is a karstic aquifer underlying the site and if so characterises the feature i.e. identify recharge sources, rates and directions of flow, and zones of discharge.
5. A plan for the design and implementation of measures to monitor and minimise impacts. As a minimum this should include ongoing monitoring of ground subsidence and groundwater quality.

Pest Animal Control Plan

. The Plan must:

1. Contain strategies that identify all pest animals known to be active on the Land;
2. Contain strategies that limit access or control the access of the identified animals to putrescible materials on site. This may include control methods for the elimination of targeted species while not impacting upon non-targeted species; and
3. Include actions designed to restrict the ability of pest animals to breed and feed on the land.

dulverton waste management

ISO 14001:2015 Environmental Management

Environmental Management System (EMS)

ENVIRONMENTAL & GENERAL - CORRECTIVE ACTION REGISTER (CAR)

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ENV-676	DWM1052	MG	1/07/2020	A resident has reported an odour complaint stating the odour has been bad for approx. the last 3 days but was particularly bad between 8-9pm Tues 30th June	At the time of the odour the site had been close for some hours with no activity at that time. DWM spoke to complainant to understand their concerns Atmospheric Observations were: No wind, 7 degrees overnight and fog was held in the Railton Valley.	ML	1/07/2020	Possibly the odour has been generated from one of the 2 activities on site. DWM are reviewing all procedures and refining any practices as appropriate.	DWM continue to improve processes and site personnel adhere to EMS procedures to reduce the likelihood of odour.	ML	1/07/2020	TC
ENV-677	DWM1053	MP	9/07/2020	A resident has reported an odour complaint stating that the odour is really bad this morning, they can hardly breathe and that this is an ongoing issue to which they are anxious to get a resolution	The Odour occurred early hours of the morning, before the site was operational. Complainant was clearly upset, and requested they not be contacted. Atmospheric observations: no wind, 4 degrees overnight and fog was held in the Railton Valley. Complaint received directly by DWM. Weather Forecast reviewed.	ML	9/07/2020	Possibly the odour has been generated from one of the 2 activities on site. DWM are reviewing all procedures and refining any practices as appropriate.	DWM continue to improve processes and site personnel adhere to EMS procedures to reduce the likelihood of odour.	ML	9/07/2020	TC
ENV-679	DWM1055	AW	27/07/2020	A resident called regarding odour, the resident had left a bedroom window open and the smell had gone right through their house. This has been an ongoing issue for this resident	At the time of the complaint the windrow turner was operating, there was minimal wind and very cold conditions. Both the Site Supervisor and DWM office spoke to the complainant and she requested no further action. The Site Supervisor stopped turning this day to assist in dissipation of any steam.	ML	21/07/2020	Possibly the odour has been generated from one of the 2 activities on site. DWM are reviewing all procedures and refining any practices as appropriate.	DWM continue to improve processes and site personnel adhere to EMS procedures to reduce the likelihood of odour.	ML	21/07/2020	TC
ENV-681	DWM1056	ML	11/08/2020	During a walk around site a green Algae was identified on the top of the Stormwater pond. It is noted there is no risk of overflow to storm water.	Site Supervisor to advise staff to use face shield when using the water if required. Contractor came to site and took Algae samples to identify the Algae and whether there are any toxicity concerns and to advise of next steps.	ML	11/08/2020	Cause not identified.	Contractor sampled water results indicate no further action required. Algae is not toxic.	ML	8/09/2020	TC
ENV-682	DWM1057	JW	21/08/2020	Customer called concerned that DWM compost is not "organic" due to the inclusion of Biosolids.	O&PO spoke to the complainant at length and the only outcome advised was that we would review the new Biosolids Guidelines (2020). The laboratory who tests DWM's compost (SESL) have been requested to review the changes in the Biosolids Guidelines and to advise whether there is any action required by DWM.	ML	20/10/2020	Some customers believe that bio-solids use in compost do not equate with being organic. The DWM website is clear that Biosolids are included in our compost.	DWM marketing material is appropriate - no action required. DWM met with EPA RE New Biosolids guidelines, which is an ongoing discussion point. DWM are awaiting advice from the EPA as to clarify the classification.	MP	20/10/2020	TC
ENV-683	DWM1058	JW	31/08/2020	Nearby resident called (31/08 and 03/09) to advise they were experiencing an influx of flies.	Increased day cover was placed and active area decreased.	ML	4/09/2020	Excessive active landfilling area and season likely to be contributors.	O&PO and contractor to regularly monitor active landfilling area and plan to minimise it.	ML	15/10/2020	TC
ENV-684	0788	SS	7/11/2020	Smoke was observed to be coming from Green Waste pile.	Site Supervisor separated into smaller piles and wet down with water. A sprinkler was set up to keep wet over the weekend.	ML	7/11/2020	Internal combustion within the green waste pile.	No action required, this was observed during a daily inspection of the area prior to the plant opening in the morning. Personnel acted appropriately and contained the incident.	ML	2/12/2020	TC
ENV-685	N/A	ML	2/12/2020	Since commissioning B1 South, landfill leachate has become slightly odorous. Likely due to fresh waste being deposited.	ML has requested pricing to be provided to commission a pump, to be used to empty the lagoon. ML has engaged contractor to conduct leachate testing.	ML	2/12/2020	Unknown, it may be biological or algae based.	Commissioned pump that pumps from the base of the leachate pond and pumped all the leachate from the pond. Will monitor for future occurrences.	ML	27/01/2021	TC
ENV-686	1062	ML	7/12/2020	Due to the new tipping plate design, a third tipping plate is required to ensure consistency across the site. This will assist in standardising set up requirements	Ordering the manufacture of a Third Tipping plate.	ML	7/12/2020	DWM recognised the opportunity for improvement.	Tipping plate has been received, and installed.	ML	27/01/2021	TC
ENV-687	0793	SS	8/01/2021	Green shed was broken into and the internal door to the tool storage section damaged by the intruders. The fuel truck was tampered with resulting in missing tool pouch and other small things were stolen.	Incidents reported to the police, insurance and DWM. Inventory of items stolen was created.	ML	8/01/2021	Persons unknown gained access to the site through breaking into the locked gates.	Security Cameras have now been installed across the site. For information only: Tas Police advised they have made some progress in the case and would advise further if they are able to identify any of stolen DWM items.	ML	12/04/2021	TC

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ENV-688	0794	SS	15/01/2021	SS arrived to find the boom gate lock forcefully opened and the office and crib room broken into. There were smashed windows and doors were open. Power tools, chainsaw, hose reel and air conditioner stolen.	Incidents reported to the police, insurance and DWM. Inventory of items stolen was created.	ML	15/01/2021	Persons unknown gained access to the site through breaking into the locked gates.	Security Cameras have now been installed across the site. For information only: Tas Police advised they have made some progress in the case and would advise further if they are able to identify any of stolen DWM items.	ML	12/04/2021	TC
ENV-689	0795	SS	18/01/2021	The Site Supervisor arrived to find burnout marks on road leading to site. Checked the security camera mounted in a tree and discovered the camera was missing	Incident reported to DWM by the Site Supervisor.	ML	18/01/2021	Persons unknown removed camera, possibly it wasn't well camouflaged and was spotted.	The camera was covered under DWM's insurance and a claim has been completed. Security cameras have been installed across the site. One is reserved for 'roaming' and setup where and as assessed it will be of use.	ML	11/06/2021	TC
ENV-690	N/A	TRES Internal Audit	17/01/2021	**Moderate Risk Identified - Monitoring, Measurement, Analysis & Evaluation:** *The monitoring, measurement, analysis and evaluation of some outsourced processes might not be sufficient to capture errors that could impact environmental performance. Evidence: Tasmanian helicopters chemical application form (CAF) No TH 16251 dated 27-Jun-2020 has errors in total chemical used, with totals equating to 18.0 and not 16.8 hectares treated at the listed application rates for all four chemicals [Stinger, Clomac, Pulse, Crucial], thereby indicating possible recording errors, excessive application or waste.*	Requested and Reviewed copies of CAF's.	ML/AA	2/02/2021	CAF showed there were more chemicals loaded than the spraying ratio per Ha.	Workflow has been updated to require CAF's review on each supplier invoice, and discrepancies to be followed up. The Contractor has confirmed, the remaining chemicals on CAF #16251 were disposed of after spraying as stated on the CAF.	ML/AA	15/02/2021	TC
ENV-691	N/A	TRES Internal Audit	17/01/2021	**Moderate Risk/Opportunity For Improvement Identified- Management Review:** *The management review minutes contain no obvious information on environmental performance trends in monitoring and measuring results, fulfilment of compliance obligations and results of audits. Evidence: Minutes dated 21-Oct-2020 at item 3 are "results of Internal Audits in 2020" yet these do not give results of past audit but indicate future audit and certification body audit is only mentioned as "took place" without any reference to results. There is absolutely no mention of monitoring and measuring results plus fulfilment of compliance obligations. The organisation could ask how figures were calculated.*	AO(E) has sought further clarification from the auditor on this item. As a consequence of that discussion, DWM believe that the management review is fit for purpose for an organisation of our scale. This is reinforced by the external auditor who has not had any issue with the conduct of the management review meeting.	AA	20/04/2021	Opportunity for improvement was recognised by the internal auditor.	A footnote has been developed for the management review meeting minutes template detailing what we already do with respect to ongoing review of the EMS (i.e. CAR list reviews and reporting, cyclic review of EMS documents like Policies, Procedures and Work Instructions, and routine review of the Objectives and Targets register etc.).	AA	9/06/2021	TC
ENV-692	N/A	SS	3/03/2021	The Site Supervisor has noted on the February Environmental Checklist that some vegetation within the DORF irrigation area are showing signs of distress.	DWM and Site Contractor management believe the issue is related to the current sprinkler system. Gradco have investigated alternative sprinkler options, one has been selected for trial. Trial is on-going.	ML	12/04/2021	DWM believe the cause is due to a sediment build up within the DORF Leachate pond, causing the irrigation sprinklers to block frequently.	All sprinklers within the irrigation zone have been replaced. The trial has so far demonstrated better coverage and less blockages. Filter has been installed.	ML	20/08/2021	TC
ENV-693	0800	SS	19/03/2021	Odour Complaint received via the Site Supervisor, from a Railton Road Neighbour.	The Site Supervisor spoke with the neighbour, who advised it's the first time in a long time he has had any issues with odour at his property. The Site Supervisor confirmed with DWM that there did appear to be some odour onsite although the source was difficult to identify.	SS/AA	19/03/2021	It is believed a combination of factors, including the conditions on the day, contributed to the potential for odour to leave the site.	AA and the Site Supervisor completed a review of the circumstances to recognise and avoid this combination of factors in the future.	19/03/2021	AA	TC

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ENV-694	N/a	ML	21/02/2021	A Director raised an ABC article regarding compost being contaminated with herbicides in Victoria. DWM conducted a due-diligence check to understand potential risk to DWM.	ML spoke to a Contractor, whos expertese is composting, in regards to the Victorian incident seeking further detail, they indicated the risk was likely low, but samples for testing have been sent to them for analysis.	ML	22/02/2021	The facility in Victoria, received a volume of feedstock contaminated with Herbicide.	DWM Tested the current stockpile for Herbicide, and pesticide and all results were clear at identifiable levels. This was added to the CTR for validation annually.	ML	24.03.2021	TC
ENV-695	N/a	ML	21/02/2021	Waste inputs customr raised concern with DWM regarding the amount of Hydrocarbons in Biosolids, being retained by compost. DWM conducted a due-diligence check to understand the potential risk to DWM	ML spoke to composting expertese Contractor regarding the concerns, further detail was provided, that when this test is carried out the component measures is carbon. Their initial thoughts were that the risk was extremely low.	ML	22/02/2021	Hydrocarbons, originate from the sewage treatment process, and associated facilities	DWM tested the current stockpile for hydrocarbons, and the levels returned were below 800 mg/kg. For context, the EPA guide for soil contamination requires a result of <1,000 mg/kg for soil to be classified as clean fill.	ML	24.03.2021	TC
ENV-696	0503	SS	7/04/2021	When processing green waste loader operator found a steel chair, hose reel, scrap steel & lots more rubbish in bucket of waste.	Site personnel are manually removing contamination from the green waste as its used.	SS	7/04/2021	After investigating, it was found the contamination entered the waste after it was mulched while still onsite at the Waste Transfer Station.	MP contacted the Waste Transfer Station to advise them of the contamination, and requested they be more conscious of this issue in the future. Site personnel are aware of the issue and are monitoring the incoming wastes for contamination.	MP	14/04/2021	TC
ENV-697	0504	SS	12/04/2021	The Site Supervisor found two locks were removed from the back boom gate on the main entrance.	The Site Supervisor ordered and installed two new locks for the boom gate.	SS	12/04/2021	DWM cannot identify how the locks were removed, it is assumed to be by those wishing to trespass onsite.	The new locks have arrived onsite and are now in use.	SS	9/06/2021	TC
ENV-698	0505	SS	12/04/2021	There was a small fire on Landfill after the operator ran over something and it ignited.	The operator saw the smoke and put it out immediately by spreading and moving the waste to the edge of the landfill.	SS	12/04/2021	The machine drove over something in the landfill that sparked and caught alight.	It is not possible to completely prevent this from occurring due to the varied nature of the waste disposed in the landfill. Machinery operators will remove waste, such as batteries, if they are noticed before compacting.	AA	14/04/2021	TC
ENV-699	DWM-1063	AA	13/04/2021	The Site Supervisor has reported to AA that over a number of loads delivered today, from a WTS, there would have been 40 tyres which site staff were unaware of until they tipped their waste into the Landfill.	MP contacted the WTS and advised them we will not be able to accept their waste if it continues to be contaminated with tyres. They were asked to investigate and provide a response to DWM, at this stage it appears to be an isolated incident.	MP/AA	13/04/2021	Operators at the WTS were not preventing and/or removing tyres incorrectly disposed of as general waste. This issue was not evident to the landfill operator until the bin contents were spread across the landfill by the compactor.	It is not possible to completely prevent this from occurring due to the varied nature of the waste disposed in the landfill. The WTS Supervisor has raised this issue with WTS staff and provided a refresher on what can and cannot be placed into general waste and spotting suspect customers at the gate. The WTS advised that they cannot pinpoint who or when the tyres came into the WTS and suspect it was a one off incident.	AA	14/04/2021	TC
ENV-700	0507	SS	20/04/2021	The loader operator at the DORF noticed smoke coming from green waste pile.	Operator successfully followed DWM fire extinguishing procedures and the incident was quickly resolved.	SS	20/04/2021	Internal combustion within the green waste pile.	DWM procedures were reviewed and deemed sufficient. The concern was raised during the daily inspection of the area. Personnel acted appropriately and contained the incident.	ML	9/06/2021	TC
ENV-701	DWM1064	ML	21.04.2021	On the road travelling to site, OP&O found that a customer truck had left the road and was sitting in the drain with 2 wheels off the ground. The customer's management team were already on the scene.	DWM assisted with the incident through; using a DWM vehicle for traffic management; securing the truck with a wheel loader and , using an excavator to remove truck return truck to the road.	ML	21/04/2021	There was no evidence of road damage or hazards to have caused this incident. A combination of driver error and weather conditions was determined as the cause.	DWM/ Site Contractor staff provided appropriate assistance to the customer and ensured safe access to and from the DWM site for others. The OP&O discussed the incident with the customers management team at the time of the event and they completed their own incident investigation. This event did not occur onsite and there is no further action required.	ML	9/06/2021	TC

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ENV-708	N/A	BDO IT & Finance Systems Internal Audit Report	6/05/2021	**iWeigh** - The current interface between iWeigh and MYOB is manual and inefficient, with increased risk of human error and fraud. Recommended to explore options for automated interfacing or bulk importing of data to improve this process.	Currently investigating opportunities to implement a 'linking program' which will automatically take the data from iWeigh and enter it into MYOB for reviewing (this refers mostly to customer waste disposal data). Scheduled for follow up with M-Files service provider in November.	JW/MB	10/01/2022	Proactive suggestion resulting from the Internal Audit to improve processes and prevent the likelihood of fraud.	DWMs M-Files service provider built a software solution to import weighbridge data to the invoicing software, however the procedure to do this became more arduous than the original method, and had greater risk of innacuracy and error than our original process. Some elements of this solution were incorporated and while DWM continue to actively investigate improvements for systems and processes, segregation of duties in the team is considered an adequate mitigation measure.	MB	17/04/2023	TC
ENV-709	0509	SS	21.05.2021	Fire in green waste pile at the DORF.	DWM/ Site Contractor staff followed procedure and successfully contained and extinguished the fire.	SS	21/05/2021	Internal combustion within the green waste pile.	No action required, this was observed during a daily inspection of the area. Personnel acted appropriately and contained the incident.	ML	9/06/2021	TC
ENV-711	1066	AW	23.06.2021	Odour complaint received from nearby resident via Latrobe Council	Reviewed site operations data, and there appears no direct link to DWM	AA	1/07/2021	Nil	DWM continue to improve processes and site personnel adhere to EMS procedures to reduce the likelihood of odour.	ML	2/08/2021	TC
ENV-712	N/A	BSI Audit	16.06.2021	*****Opportunity For Improvement***** Internal audit planning documents could outline more detail regarding: * Internal auditing activities in place. * Processes / system audits that are programmed on risk and the importance of the activity being assessed.	Details of the concern were sent to the Internal Auditor. Internal Auditor to update Audit plana based on the feedback received.	MB	3/08/2021	Opportunity for Improvement Raised at external audit.	Internal Audit plan received on 31.08.21 included expanded details as requested from the External Audit Report. Internal Audit Report details Risk levels and compliance concerns.	MB	31/08/2021	TC
ENV-713	1067	AW	18.08.2021	Excess fly complaint received from nearby resident. The past week has seen a significant increase in flies for this time of year.	Site inspection was conducted. Good cover was evident at the DORF and Landfill.	ML	18.08.21	No evidence on Site of excess flies. High probability issue unrelated to DWM.	N/A	ML	20.08.21	TC
ENV-714		Internal Audit	17.09.2021	Internal Audit ISSUE No 2021-02 = R 010 Register of Hazardous Substances has not been updated to indicate latest SDS date as per "REMINDER: If this is a current SDS, don't forget to link it to the R 010 [MFID 15570]" on the meta-data card. Also, the table has "MSDS" rather than "SDS".	Hazardous Substances Register has been updated.	MB	20/09/2021	SDS Metadata does not contain the information to assist updating of the Register. Workflow can be improved to ensure update occurs when documents are updated.	Instructions have been added to the Mfiles workflow to ensure the register details are updated at the same time as the SDS is checked.	MB	1/10/2021	TC
ENV-715		Internal Audit	17.09.2021	ISSUE N0 2021-01 = Consider including more clear reference to emergency scenario actions that refer to prevention or mitigation of adverse environmental impacts. For instance, the 12/05/2021 scenario had "Plant/Interaction Collision" and the control of potential petrochemical spills, pollution and contamination of soil and water could be noted.	Review of how scenarios are planned and how environmental aspects and impacts can be included in the event.	MB	22/09/2021	Site Contractor staff plan the scenarios. Environmental factors are not included in the template during the planning stages.	Scenario planners have been requested to include environmental aspects and impacts in the template and planning for scenario days.	MB	30/09/2021	TC
ENV-716		Internal Audit	17.09.2021	ISSUE No 2021-03 = Record of helicopter application of lime indicates 8.5 tonnes total used, application rate of 0.25 tonnes per load and 36 loads does not calculate correctly.	Helicopter spraying will be unlikely to be performed in the future. DWM and Site Contractor have reverted to previous weed control measures to reduce risks to Flora and Fauna and ensure cost controls are in place.	ML	20/09/2021	It has proved difficult to uniformly apply herbicide with Helicopter spraying.	Have reverted to conventional herbicie application techniques.	ML	30/09/2021	TC
ENV-717		Internal Audit	17.09.21	ISSUE No 2021-04 = Record of management review does not have start time even though it is meant to show "Meeting Start Date and Time"	Start and finish times have been noted in Management Review meeting minutes for October 2021.	MB	15.10.2021	Details of meeting start and end time were not completed on the minutes template.	Importance of details being recorded correctly has been communicated to staff.	MB	20.09.2021	TC
ENV-718		Finance	15.08.21	DWM customer placed in voluntary administration and have outstanding debts.	Review of account and debts outstanding. Weighbridge tags have been deactivated. New account with another customer has been created. Debtor forms have been submitted with Adminstrators.	JW/MG/ML	24/08/2021	Customer account not secured.	DWM credit terms and debtor follow up procedures have ben reviewed. Account forms have been updated with assistance from DWm lawyers. Credit caps have been applied to new accounts.	MB	14.10.2021	TC
ENV-719	0513	SS	23/11/2021	Small fire on the landfill.	The operator pushed the smouldering material to the side of the landfill and smothered it with soil.	Site Staff	23/11/2021	Combustible materials in the landfill	N/A	ML	25/11/2021	TC

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ENV-720	0514	SS	30/11/2021	Fire on the landfill.	The compactor operator squashed a small battery in a load of waste which ignited a small fire. The operator picked up the battery with a spade and removed it from the landfill. The excavator operator removed the remaining smouldering material from the landfill. Gradco CAR - HAII 1132	Site Staff	30/11/2021	Combustible materials in the landfill	N/A	ML	2/12/2021	TC
ENV-721	0515	SS	1/12/2021	Fire on the landfill.	The compactor operator noticed smoke coming from a load disposed of at the tipping plate. The compactor and excavator operators removed the load from the landfill, placed it on a clay surface and smothered it with material.	Site Staff	1/12/2021	Combustible materials being delivered	N/A	ML	3/12/2021	TC
ENV-722	DWM1068	AO	31/12/2021	Aresident called to report odour coming from site. They were frustrated this was still occurring and felt nothing had been done to fix the issue. The resident advised the odour has been bad for around a week.	AO contacted site who advised windrow turning had been underway and with the increased heat and wind, the odour problem was suspected to have been exacerbated. Turning had since finished and therefor the odour issue should ease.	AO	31/12/2021	It is suspected a combination of weather conditions contributed to odour leaving the site.	DWM continue to improve processes and site personnel adhere to EMS procedures to reduce the likelihood of odour.	ML	3/02/2022	TC
ENV-723	DWM1069	AO	31/12/2021	A resident called to report odour coming from site. The resident advised the odour has been quite bad for the last week.	AO had contacted site regarding the earlier complaint and advised the resident that windrow turning had finished and the odour issue should ease.	AO	31/01/2021	It is suspected a combination of weather conditions contributed to odour leaving the site.	DWM continue to improve processes and site personnel adhere to EMS procedures to reduce the likelihood of odour.	ML	3/02/2022	TC
ENV-724	DWM1070	AO	31/12/2021	A resident called to report odour coming from site. The resident advised the odour had been strong for the last week.	AO had contacted site regarding the earlier complaint and advised the resident that windrow turning had finished and the odour issue should ease.	AO	31/01/2021	It is suspected a combination of weather conditions contributed to odour leaving the site.	DWM continue to improve processes and site personnel adhere to EMS procedures to reduce the likelihood of odour.	ML	3/02/2022	TC
ENV-725	0517	SS	31/12/2021	Fire on the landfill.	The operator used the excavator to move the burning material from the landfill to gravel area away from other material. The burning material was covered with growing medium to extinguish the fire. The site supervisor confirmed the fire had been extinguished before leaving site for the day.	SS	31/01/2021	Combustible materials in the landfill	N/A	ML	3/02/2022	TC
ENV-726	DWM1071	AO	19/01/2022	A resident called to report the odour from site was very bad both this afternoon and yesterday afternoon. Odour wasn't a problem in the morning, but became almost unbearable in the afternoon.	The OP&O conducted an initial investigation and found no obvious causes for the increased odour leaving site.	ML	19/01/2022	After further investigation, it is suspected a combination of weather conditions has contributed to odour leaving the site.	DWM continue to improve processes and site personnel adhere to EMS procedures to reduce the likelihood of odour.	ML	3/02/2022	TC
ENV-727	DWM1072	AO(E)	2/02/2022	During stage 3 of Railton Road upgrade, the road works contractor punctured the leachate pipeline between DWM site and Latrobe. The pump station was isolated at the time (standard practice during road upgrade). This allowed only the residual pressure to escape into the excavation area. The contractor notified O&PO.	The O&PO notified site staff to maintain pump isolation, a contractor was organised to pump the escaped liquid from the excavation area which was then disposed of onsite.A contractor was engaged to repair the pipeline which was fixed by end of day on 03/02/2022.	ML	2/02/2022	Documentation at State Growth showed inaccurate information for the pipeline infrastructure.	OP&O to work with State Growth to update pipeline mapping. The section of pipeline will be aligned with contractor survey as part of stage 3 works.	ML	15/02/2022	TC
ENV-728	DWM1073	SS	8/02/2022	At 1.58am 08/02/2022 two unknown individuals entered the Green shed through a roller door which was forced open. They were in the shed for 10 mins and stole several low value items.	The Police attended the scene. A review of CCTV footage identified the make/model and number plate of the vehicle. These details were provided to the Police.	SS	8/02/2022	Unknown Individuals forced access to DWM site by cutting through boundary fence.	The OP&O and the neighbouring property owner arranged for barriers to be installed. The barriers prevent vehicle access to DWM's boundary fences.	ML	19/07/2022	TC
ENV-729	DWM1074	ML	14/02/2022	Latrobe Council received a complaint from a resident who advised that noise is starting at 4.00am, when inspecting the noise at 4.00am machinery was seen working to the left of the DWM weighbridge.	The OP&O spoke with neighbouring block in which machinery was being operated for logging.	ML	14/02/2022	After discussion with the company they confirmed they were responsible for the noise.	The OP&O met with the company and an agreement to alter their start time to 6am was made.	ML	15/02/2022	TC
ENV-730	DWM1075	ML	10/02/2022	The EPA received an odour complaint which they have associated with DWM operations, the EPA advised the caller described the odour to be like dead animals/rotting flesh.	DWM and the EPA have agreed that the odour is related to a specific waste stream, which was being disposed of at DWM as part of an environmental emergency response. The OP&O spoke with the EPA and agreed that DWM would review current processes and provide the EPA with an update. As an immediate action DWM would stop receiving additonal loads and would frequently cover the deep burial area with day cover.	ML	10/02/2022	The OP&O spoke with the EPA and both determined the odour to be related to a specific waste stream.	The OP&O reviewed the waste stream disposal process in conjuction with the customer. Mulitiple changes were made, including the frequency of loads brought in, and the acceptable age of those loads. The covering process of the deep burial area was also updated to include thicker and more frequent covering requirements.	ML	15/02/2022	TC

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ENV-731	DWM1076	AA	22/02/2022	Resident called complaining about the odour coming from site.	The OP&O conducted an initial investigation and found no obvious causes for the increased odour leaving site.	ML	22/02/2022	Possibly the odour has been generated from one of the 2 activities on site (landfill or DORF).	DWM continue to improve processes and site personnel adhere to EMS procedures to reduce the likelihood of odour.	ML	5/04/2022	TC
ENV-732	SWM1077	AW	25/02/2022	Residentcalled with odour complaint.	The OP&O conducted an initial investigation and found no obvious causes for the increased odour leaving site.	ML	25/02/2022	Possibly the odour has been generated from one of the 2 activities on site (landfill or DORF).	DWM continue to improve processes and site personnel adhere to EMS procedures to reduce the likelihood of odour.	ML	5/04/2022	TC
ENV-733	DWM1078	MS	28/02/2022	The OP&O observed a contractor on a neighbouring property creating a traffic hazard on Dawson Siding Road, just after the railway intersection. Contractor trucks were reversing blind to the road corner.	The OP&O alerted relevant customers to the potential hazard and made contact with the neighbour to rectify the hazard.	ML	28/02/2022	The neighbouring contactor was the cause of the traffic hazard.	The OP&O made contact with the contactor, the contractor advised they would make alternate arrangements for their trucks when leaving neighbouring properties.	ML	5/04/2022	TC
ENV-734	DWM1080	AA	22/03/2022	Resident called with an odour complaint	The AO(E) called the Site Supervisor who advised that compost windrows had been turned in the morning, and that site staff had noticed the odour as well.	AA	22/03/2022	Possibly the odour has been generated from one of the 2 activities on site (landfill or DORF).	DWM continue to improve processes and site personnel adhere to EMS procedures to reduce the likelihood of odour.	ML	5/04/2022	TC
ENV-735	DWM1081	AA	13/04/2022	DWM were notified by a third party that a waste disposal customer had lost some of its load along Railton Road on its way to site.	Site staff assisted the driver in cleaning up the spilt material and with disposing of the remaining waste in the landfill. The Site Supervisor advised DWM that the EPA and the local council were contacted.	SS	13/04/2022	Customer delivering waste had over-filled and not appropriately covered their waste.	DWM Site Induction clearly articulates the expected minimum requirements of appropriate load management. DWM contacted appropriate enforcement agencies of the event.	ML	20/04/2022	TC
ENV-736	DWM1082	MB	17/04/2022	Police called on Easter Sunday and left a message that the office was not 'secure'. MG was in office the next day and found the door propped open.	Investigation of office access was undertaken, including contacting other building occupants for any helpful information. It was discovered that reports of children climbing to the roof had been made. The door to the balcony was found to be unlocked. No items were found to be missing.	MB	20/04/2022	Young persons had accessed the office through the Balcony door.	Staff and regular office contractors were reminded to keep balcony locked. Entry code to shared zone was changed.	MB	30/04/2022	TC
ENV-737	0520	SS	26/04/2022	Fire within the green waste stockpile	The operator at the DORF pulled the stockpile apart with an excavator and placed a sprinkler on the stockpile. Personnel will monitor for 2 days.	SS	26/04/2022	Internal combustion within the green waste pile.	No action required, this was observed during a daily inspection of the area. Personnel acted appropriately and contained the incident.	AA	7/06/2022	TC
ENV-738	DWM1083	ML	12/06/2022	During a routine preventative maintenance inspection of the leachate pipeline, leachate was found to be leaking at a valve along the pipeline.	The leachate was contained to the catchment area and sawdust was used to soak up the spilled leachate. A contractor was called to repair the valve. This event did not exceed the requirements for EPA Notification.	SS	12/06/2022	The valve seemed to have started deteriorating nearing the end of its life span.	Investigations on the pipeline are complete, a flushing point has been added to allow for periodic flushing of the line. The line will then be flushed, removing silt which appears the contributing root cuase of the air valve failures. A long term scheduled maintenance system is currently being investigated, and will be reported separately as per GTL #1588082.	ML	10/02/2023	TC
ENV-739	DWM1084	ML	16/06/2022	DWM pump station interlock failed. (Interlock is an error detection system which should slow leachate flow if the Gilbert Street pump station was to reach its flow capacity).	The Trade Waste Company made contact with the OM. DWM isolated the compromised pump system and engaged Cromarty to investigate the cause.	ML	16/06/2022	Investigation indicates this is likely the result of a software issue.	DWM continue to liaise with the technical contractor regarding a report to identify the cause and review recommendation.	ML		IP
ENV-740	DWM1085	JW	22/06/2022	Fraudulent transactions identified on corporate credit card	AO(F) called the bank to cancel card & submit a request to dispute transactions.	JW	22/06/2022	Unknown individual obtained credit card information fraudulently.	DWM 's systems acted effectively. The fraudulent transactions were credited by the bank.	JW	7/07/2022	TC
ENV-741	0521	SS	28/07/2022	At 5.45am, the Site Supervisor arrived on site and observed flames on the landfill.	The Site Supervisor assessed the situation, and began using the compactor to separate and move the burning material to the edge of the landfill, this contained the fire. The Site Supervisor then smothered the material with clay to ensure the fire was completely extinguished.	SS	28/07/2022	An item of waste (likely a battery) ignited.	It is not possible to completely prevent this from occurring due to the varied nature of the waste disposed in the landfill. Machinery operators will remove waste, such as batteries, if they are noticed before compacting. AO(E) worked with Site Contractor's HSE team to make minor updates to DWM's incident response process to ensure they are best practice.	AA	20/09/2022	TC

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ENV-742	0522	SS	31/07/2022	At 9.30am, a site contractor operator arrived on site to find a small fire on the landfill.	The operator used the Bomag to push the fire towards the clay capping and placed growing medium on top to extinguish the fire.	Site Operator.	31/07/2022	An item of waste (likely a battery) ignited.	It is not possible to completely prevent this from occurring due to the varied nature of the waste disposed in the landfill. Machinery operators will remove waste, such as batteries, if they are noticed before compacting. AO(E) worked with Gradco's Site Contractor's team to make minor updates to DWM's incident response process to ensure they are best practice.	AA	20/09/2022	TC
ENV-743	DWM1086	AA	17/08/2022	Post plantation harvesting on neighbouring land investigated for effects on DWM site. Flooding of the harvested land is likely to affect the usability of Dawsons Siding Road, and long term, could have negative effects on the karst system below DWM's site. The neighbouring plantation appears to have been harvested all the way to Caroline Creek. DWM's understanding is that there has always been a reserve area/buffer for Caroline Creek.	During a site visit, DWM raised concerns with the water branch of Dept of Natural Resources and Environment (NRE). NRE indicated the buffer/exclusion zone should have been 40 metres on either side of Caroline Creek. At the time, NRE were investigating increased sediment loads within the Caroline creek catchment. NRE's inspection found DWM not responsible.	ML	14/09/2022	It appears the harvesting contractor didn't comply with the Forest Practices Code.	CEO is currently investigating with NRE regarding the harvesting methods used, and to understand the effects this may have on DWM's conservation area that surrounds Caroline Creek. OM has been in discussions with plantation owner about removing debri from Caroline Creek. The plantation owner advised that they still have an open harvest plan on the block and they're looking to undertake the works in accordance with this current plan.	VS		IP
ENV-744	DWM1087	AA	1/08/2022	Tyres were disposed of in the landfill	The Site supervisor provided an image of the tyres on the landfill to the OP&O. The OP&O requested the customer/carrier investigate.	ML	8/08/2022	Tyres were disposed of in a commercial skip bin, and were not visible prior to emptying the load on site.	The transport company were informed of the error, and have undertaken awareness training with the customer.	ML	14/10/2022	TC
ENV-745	DWM1088	AA	16/09/2022	Limited DORF leachate storage freeboard presents overflow risk.	The OP&O, CEO and SS inspected the site on the 16/09/2022. It was agreed to pump the contaminated stormwater into the emergency leachate storage pond to establish additional holding capacity and prevent the existing DORF storage pond from reaching capacity.	GP	16/09/2022	Excess ground saturation due to rainfall has caused irrigation run-off.	DWM continue to manage leachate storage. Several high liquid waste streams have been ceased temporarily and approval from EPA for management of freeboard achieved 1 November 2022.	VS	29/11/2022	TC
ENV-746	DWM 1089	AA	19/09/2022	A compost customer received compost contaminated with raw plant materials.	AA initially investigated with the contractor logistics manager, who confirmed the truck used for compost delivery was also used beforehand for a green waste disposal on site.	AA	20/09/2022	The contractor truck was used for disposing green waste on site before it was used to delivery compost.	The issue has been raised with the contractor logistics team, and the contractor's General Manager. The driver responsible for the delivery has been reprimanded and will no longer deliver compost to this customer. The delivery charges were waived by the cartage contractor.	AA	23/09/2022	TC
ENV-747	DWM 1090	AA	22/09/2022	Excavator #160 had a hydraulic line burst causing a large quantity of hydraulic oil to spill onto the ground	Spill kit used to contain and clean up oil. Contaminated earth removed with Excavator and dumped into a suitable landfill location on site. Gradco maintenance schedule for repair. HSE team notified.	GP	22/09/2022	Mechanical failure of hydraulic line	Operators have been reminded to ensure they check hydraulic lines for wear and tear during pre-start checks.	AA	7/10/2022	TC
ENV-748	DWM 1091	AW	28/09/2022	A resident of Big Bend Road called to advise there has been an influx of flies in the past couple of weeks with a more significant increase in the last couple of days since the rain has eased. The resident spoke to a neighbour from Dawsons Siding who is also experiencing increased fly issues.	DWM inspection the site and found no unusual activity.	ML	29/09/2022	Changes in weather conditions caused influx of flies. No evidence on Site of excess flies.	N/A	ML	29/09/2022	TC
ENV-749	DWM 1092	MB	13/10/2022	Significant rainfall event occurrence, impacting Site operations and customers.	Monitoring of site conditions, ensuring a safe working environment. Enacting the Emergency Management Plan and closure of site as required. Maintain regular contact with customers and stakeholders (see communications file MFID 1590697). EPA have been advised in relation to leachate management at both DORF and Landfill.	ML	13/10/2022	Forecasted rain event.	DWM enacted the emergency management plan, ensuring site personnel safety and closure of the site at 3pm on 13/10/2022. The site has reopened at midday on the 14/10/2022 to critical landfill customers only, the DORF will remain closed until the 15/10/2022, where extended hours will be offered.	ML	15/10/2022	TC

dulverton waste management

ISO 14001:2015 Environmental Management

Environmental Management System (EMS)

ENVIRONMENTAL & GENERAL - CORRECTIVE ACTION REGISTER (CAR)

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ENV-750	DWM 1093	AC	31/10/2022	Overflow of Leachate Storage Pond	Reported to EPA hotline.	ML	31/10/2022	Severe weather caused a large volume of leachate to be generated, with out warning.	CEO and OM met with EPA regarding the weather pattern currently being experienced.	VS	29/10/2022	TC
ENV-751	DWM 1094	AC	26/10/2022	Fluorescent Dye in Caronline Creek	ML and GP collected data from site; sent to EPA; EPA replied stating that they could confirm that the dye had not come from DWM.	ML	31/10/2022	Cement Australia released a controled volume of Fluorescent Dye into Caroline Creek under EPA approval.	No Action	ML	6/12/2022	TC
ENV-752	CAR524	AM	3/01/2023	Difficulty backing truck trailer to deep burial	Load of waste came in and couldn't get back to tipping plate as trailer made it difficult to back up, so needed to tip off at Landfill tipping plates to unload, and then pushed into deep burial hole as needed. Burial trailers are harder to navigate back up towards hole.	AM	3/01/2023	Changing site layout and continuous adjustments.	Incident noted and monitored.	ML	1/02/2023	TC
ENV-753	DWM1097	AW	24/01/2023	A resident close to site has called with an odour complaint. They have noticed a bad fish waste odour coming from site since Christmas.	Phone conferene between SS and OM. Deep burial holes filled with extra depth to reduce smell after end of day.	SS	24/01/2023	Waste delivery caused excessive smell for short period.	Site followed correct procedure and odour was managed within expected timeframes.	ML	14/04/2023	TC
ENV-754	DWM1098	ML	7/03/2023	Stormwater left COVA construction site and entered DWM's DORF leachate catchment.	Temporary drain was installed until the final concrete culverts could be installed.	ML	8/03/2023	Stormwater culverts were incomplete and a rain event was experinced onsite.	Stormwater culverts have been installed to the level of final design. Regular environmental walkthroughs are now being carried out by COVA management and Superintendent.	ML	14/04/2023	TC
ENV-755	DWM0530	SS	1/03/2023	Damage to boom gate and vehicle on fire	When SS arrived at site, front boom gate had been rammed & a burnt out ute. Police called, arrived at 5:30am. Report number: 42-01032023	SS	1/03/2023	The boom gate is accessible by members of the public.	Difficult to prevent vandalism that occurs on land that can be accessed by members of the public.	ML	14/04/2023	TC
ENV-756	DWM0533	SS	21/05/2023	The tanks which were under assembly for the new leachate pumpstation were dislodged during a weather event.	SS received a call from site saying that the tanks had moved and have been damaged by high winds. The contractor was notified and the tanks (and area around) was made safe.	ML	21/05/2023	The weather event occurred during assembly, prior to them being anchored to the concrete. Anchoring occurs during hydrostatic testing.	Tanks were structurally assessed by the contractor and Superintendent and found to be undamaged. Tanks were moved back into position and temporary anchoring was installed.	ML	31/05/2023	TC
ENV-758	DWM1100	AC	27/06/2023	A resident contacted the office, reporting a sour milk smell which they believe was originating from our site.	CEO and SS advised. SS visited the location and was unable to notice a smell.	AC	27/06/2023	Possibly the odour has been generated from one of the 2 activities on site (landfill or DORF).	DWM continue to improve processes and site personnel adhere to EMS procedures to reduce the likelihood of odour.	MP	30/06/2023	TC

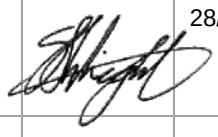
Public Environmental Report

Dulverton Organics Recycling Facility

Dulverton Regional Waste Management Authority

28 July 2023

The Power of Commitment

Project name		Dulverton Environmental Monitoring						
Document title		Public Environmental Report | Dulverton Organics Recycling Facility						
Project number		12564388						
File name		12564388_REP_REV0_DORF Public Environmental Report.docx						
Status Code	**Revision**	**Author**	**Reviewer**		**Approved for issue**			
			Name	**Signature**	**Name**	**Signature**	**Date**	
S3	REV0	R. Scott	S. King		S. Wright		28/07/2023	

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Appendices

Glossary

Term/Acronym	Definition
CAR	Corrective Action Request
DORF	Dulverton Organics Recycling Facility
DOT	Dulverton Organics Transformation
DWM	Dulverton Waste Management
EMS	Environmental Management System
EPA	Environment Protection Authority
EPN	Environment Protection Notice
SWMS	Safe Work Method Statement

1. Introduction

This report has been prepared by GHD for Dulverton Waste Management (DWM) for submission to the EPA as part of the application by DWM for a remission of the variable component of the annual licence fee for the Dulverton Organic Recycling Facility (DORF).

In order to apply for a variable fee remission, it is a requirement under the EPA Tasmania Annual Fee Remission Guidelines[1] (the Guidelines) to prepare a Public Environment Report (PER) covering the previous three-year period of operations at the site, using the criteria listed in the Guidelines.

1.1 Purpose of this report

This report has been prepared by GHD Pty Ltd (GHD) for Dulverton Waste Management (DWM) to address the requirements for a Public Environment Report (PER) for the Dulverton Organic Recycling Facility (DORF). The purpose of this report is to document a review of the operations and environmental performance of the DORF and to prepare a PER in accordance with the requirements of the EPA Tasmania Annual Fee Remission Guidelines for the reporting period (July 2020 to June 2023).

1.2 Scope and limitations

This report has been prepared by GHD for Dulverton Regional Waste Management Authority and may only be used and relied on by Dulverton Regional Waste Management Authority for the purpose agreed between GHD and Dulverton Regional Waste Management Authority as set out in section 1.1 of this report.

GHD otherwise disclaims responsibility to any person other than Dulverton Regional Waste Management Authority arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on any assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by Dulverton Regional Waste Management Authority, which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

Accessibility of documents

If this report is required to be accessible in any other format, this can be provided by GHD upon request and at an additional cost if necessary.

Scope of Services

In accordance with the purpose of the report, GHD's scope of services was limited to preparing the July 2020 to June 2023 Public Environmental Report (PER) for the Dulverton Organic Recycling Facility (DORF) in accordance with the EPA Tasmania reporting requirements (Annual Fee Remission Guidelines).

[1] EPA Tasmania, 2010. Environmental Management and Pollution Control (General) Regulations 2017. *Annual Fee Remission Guidelines.* Second Edition, March 2010 (updated 1 July 2019).

2. Business profile

Dulverton Regional Waste Management Authority, trading as Dulverton Waste Management (DWM), is a joint authority by Devonport City Council, Kentish Council, Central Coast Council, and Latrobe Council. DWM provides holistic and environmentally sustainable waste management services for its owners, the community, and Industry. DWM owns and operates a regional landfill and the Dulverton Organics Recycling Facility (DORF) which is located on a 90 ha site at l 145 Dawsons Siding Road, Latrobe, in Northwest Tasmania.

The DORF has been a key environmental initiative in recent years for DWM as it allows the diversion of organic waste away from the landfill. Organic waste streams from a number of local waste generators are delivered daily and are blended with carbonaceous materials (refer Section 6.4, Table 3) using scientific based methods to create a high-value compost output for horticulture and agriculture. The compost is sold by DWM to various locations around Tasmania. The operation of the DORF is contracted to the Tasmanian specialist contract mining, civil construction, environmental and heavy haulage service provider Gradco, who employ two full time staff onsite, and others when required.

The DORF is currently undergoing a transformation (Dulverton Organics Transformation [DOT]) to enable processing and manufacture of compost in enclosed tunnels. The advantages of the DOT include:

– Reduction of risk of odour nuisance to nearby residents
– Reducing the time to make the product
– Improving the consistency of the product
– Reduced impact from rainfall events

Works commenced on the DOT project in December 2022 and are expected to be completed in late 2023.

DWM has in place an accredited Environmental Management System (EMS) which is annually audited by an approved independent company. To maintain accreditation, DWM is required to show ongoing improvements to the management which minimise adverse impacts on the environment. DWM also combine work health and safety requirements, such as Safe Work Method Statements, into the EMS so that the system encompasses all relevant day to day instructions for staff. The site contractor who undertakes site operations has worked continuously with DWM to ensure that all procedures used on site accurately reflect how the task is to be completed safely and with minimal environmental impact.

3. Environmental policy

DWM’s Environmental Policy (updated August 2020) is provided in Appendix A.

4. Reporting period

The reporting period covered by this public environmental report is July 2020 – June 2023.

5. Activity profile

The following activity profile provides an overview of the DORF and relevant environmental aspects of the activity.

5.1 Summary of plant and operations on site

Current Plant and Operations associated with the DORF consist of the following:

- Two heavy duty concrete 3-sided pits for trucks to deliver into, and for mixing of organic waste on arrival, in preparation to be windrowed
- Stockpile of wooden pallets to be chipped, and, at times, stockpiles of chipped pallets
- Stockpiles of green waste, intermediate-sized compost, and wood fines for mixing with organic waste delivered to site by customers
- Windrows of organic material, at varying stages of pasteurisation and decomposition
- Stockpiles of finished screened compost ready for sale to customers
- Wheel Loader mixing materials in the mixing pits in preparation to be windrowed
- Wheel loader for shifting materials to the mixing pit, around the site, and for loading trucks
- Windrow Turner (recently obtained) for turning windrows
- Mobile two-way split screening machine to screen large pieces of material out of the finished product
- Storage pond for collection of leachate
- Pump shed at the storage pond housing, including:
  - 1 pump to irrigate compost leachate back onto windrows and to supply truck bin washdown hose at mixing pits
  - 1 pump for use for irrigation of leachate into approved disposal area
- Two domestic-type water tanks for day storage of liquid waste delivered by customers
- Pump and storage shed near liquid waste storage tanks, to get liquid waste out of tanks when required
- Above-ground irrigation system for disposal of excess leachate via the Windrow Turner.
- Shipping container for storage of tools and compost batch samples
- Vehicles for moving personnel around site.

5.2 Production capacity and actual production capacity

DWM's DORF currently operates under EPN 7852/1, issued by the Tasmanian Environmental Protection Authority (EPA) in 2016. Schedule 2 of EPN 7852/1 states that:

1. The activity must not exceed the following limits (annual fees are derived from these figures):

1.1 25,000 tonnes per year of production of compost or mushroom substrate

Table 1 below shows the actual production rates (total compost sales) over the past seven financial years in m^3.

Table 1 Actual production capacity

Compost Sales	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Cubic Meters (m^3)	7155	7566	10064	12185	8870	9464	8870

Note: The average weight of a cubic meter of compost is 600kg.

5.3 Raw material consumption level

EPN 7852/1 does not specify a limit on the use of raw materials, hence reporting of raw material quantities is not required.

5.4 Production markets and sources of raw materials

Dulverton organic compost is sold around Tasmania to landscaping materials suppliers, plant nursery businesses, and as an input for orchards and vineyards. In recent times there has been an increasing market for its use in both conventional agriculture and biological/organic farming situations.

Raw materials currently used in the production of Dulverton organic compost are shown in Table 2 below.

Table 2 Raw materials used in compost production

Raw materials delivered by customers for disposal	Carbonaceous material kept on site for mixing
Milk processing waste; sludge, whey cream, wastewater	Green waste – delivered from local municipal transfer stations
Biosolids from sewerage treatment plants, primarily from northwest Tasmania	Wood fines – purchased from northwest Tasmanian processors
Potato waste from a potato processing factory (filter crumb)	Clarifier waste - historic stockpile from paper mill – (Used during the reporting period, but has recently ceased)
Supermarket organic collection bins and meat waste collection bins	Wooden pallets – delivered by customers and shredded by a contractor once delivered to site
Animal manure	'Intermediate' compost - larger particle size that is screened out of the premium compost

5.5 Pollution discharges and wastes, and control measures

A key component of DWM's Environmental Management System (EMS) is the Aspects and Impacts Register. All parts of the operation are identified in terms of where they have potential to interact with the environment (referred to as an aspect), and the potential problem this could cause (the impact). A risk rating is then calculated, control measures are developed and listed in the Register, and a residual risk rating is calculated based on all control measures being implemented correctly. A number of measures are then put in place to check and monitor any control measures that are implemented for an identified aspect, to ensure that it is adhered to. Control measures are altered or improved as necessary to provide suitable environmental protection.

This section addresses criteria listed in the Guidelines to address potential and actual impacts on the environment.

5.5.1 Air emissions, including odour

Following the introduction of composting to the DWM business model, there were periods where air emissions may have contributed to odour. This was likely due in part to a less than ideal composting process, and in part due to odorous inputs that were previously accepted. As a result, a number of waste streams are no longer accepted at the DORF.

Current practice only allows delivery of waste to the DORF by pre-approved customers. Every potential input is subject to extensive testing and analysis before being considered suitable for composting. Rules of entry to site, made clear in the annual induction, emphasise that DWM can (and will) refuse acceptance of waste if it is non-compliant with composting requirements.

In addition to these restrictions, in recent years DWM management have implemented a number of changes to the operations on the site to improve the method of composting to reduce the likelihood of odorous emissions. Using the format of the EMS, a detailed work instruction has been developed over the years and essentially makes clear what site personnel are expected to do. This is updated whenever an alteration is made to the work practice.

Improvements in process coupled with transparent and frank communication have led to an improvement in the relationship with the community and the regulator with regards to odorous emissions. Current DWM management have had an open and honest approach to any complaints received from surrounding residents. These complaints are recorded on the Corrective Action Request (CAR) task list and staff are expected to follow up and investigate any particular cause, and record any action taken to improve the situation. This task list is made available to the Board and is included in the Annual Environmental Review.

It is a requirement of DWM systems for staff and contractors to fully cooperate and welcome EPA officers on site. Current DWM staff are very proud of their role in changing the culture of this business in regard to these important relationships.

It is anticipated that the new Dulverton Organics Transformation (DOT) facility will assist further in reducing dust and odour emissions.

5.5.2 Water emissions, wastewater and stormwater

Any rain that falls on the part of the site where windrows and composting activities occur is classified as leachate and is drained to a leachate storage dam through a series of v-drains and culverts around the site. Rain filters through the windrows or falls directly onto the work area where there may be remnants of compost material and collects minute particles of nutrients and organic matter along the way, making it unsuitable to divert off site as stormwater.

Any stormwater that falls outside of the actual composting footprint, such as on the wooden pallet stockpile or the bush land surrounding the site, is collected in a series of drains surrounding the perimeter of the site. To improve the management of leachate from composting it is important to identify any sources of stormwater that are unnecessarily entering the leachate storage dam.

It is expected that the operation of the new DOT facility will result in net positive impacts for air and water quality in particular due to the enclosed design and reduced need for leachate storage.[2]

5.5.3 Noise emissions

Adverse noise emissions have not been identified as a risk associated with the current DORF operation. However, noise emissions may be generated as part of construction and operation of the new DOT and conditions relating to noise control are outlined in the DOT permit (refer section 6.8).

5.5.4 Land/soil contamination

All composting occurs on a hardstand surface, in a footprint that has been approved by the EPA for this purpose. The construction of the surface is such that soil contamination is unlikely in this area. Irrigation of compost leachate in a nearby DWM-owned pine plantation has potential to contaminate soil in the immediate area. The irrigation system was developed by a third party consultant and then approved by the EPA prior to implementation. As a result of this approved design there are licence requirements for testing of the soil and compost leachate. DWM has implemented these requirements into the EMS and set a number of control measures to ensure that the necessary monitoring is carried out.

As part of the new DOT permit, once the new DOT facility is commissioned, operation of the current DORF leachate pond and irrigation network can only occur for limited-duration emergency responses with the written approval of the Director, EPA.

5.5.5 Wastes, general and controlled

No waste is generated from the composting operations. The composting site is providing an environmentally beneficial disposal option for the waste of other businesses. Any windrows that do not reach the pasteurisation requirements, or do not meet contamination levels, as required by *Australian Standard 4454: 2012 Composts, soil conditioners and mulches*, are transported off the DORF site and used as either daily cover or growing medium on the landfill.

[2] COVA, 2022. *Environmental Effects Report – Dulverton Organics Transformation*.

5.5.6 Energy use

The use of energy on the site is not considered to be a point source for adverse emissions. The only requirement for electricity is to operate the two pumps at the leachate storage dam. Minimal machines and vehicles are required. Every day a windrow turner and a wheel loader work on site and occasionally a truck is required for shifting stockpiles of material around the site or to the landfill. Waste is delivered in trucks or tankers.

Measures taken to manage and minimise greenhouse emissions

A significant environmental benefit from the development of the DORF is the removal from the waste stream to the landfill of large amounts of organic waste, which previously would have contributed to the generation of greenhouses gas emissions as they anaerobically decomposed. This is considered by DWM to be a significant beneficial outcome for northwest Tasmania in responsibly taking action to minimise greenhouses gases.

Another significant benefit of composting this material is that the end result is a high-quality compost that puts nutrients and carbon back into the soil that would otherwise be lost if they were landfilled. The benefits of carbon storage in soil are beginning to be understood by the agriculture and horticulture communities, but perhaps the use of compost to achieve this is not yet widely known. DWM prides itself on making a product that has real value as a soil input, but also in demonstrating how greenhouse gas emissions can be minimised by this type of recycling.

There is evidence that 1 – 2% of total greenhouse gases world-wide come from the production of synthetic fertilisers, therefore producing compost as a replacement fertiliser has additional benefits.

5.5.7 Water use

All ‘water’ used on the site is compost leachate, which is recirculated from the storage dam for some of the following uses;

– wash-down hoses for truck drivers to wash their delivery bins at the mixing pits,
– firefighting or when appropriate,
– irrigating on dry windrows.

5.5.8 Flora, fauna and biodiversity

The title of land that the DORF is situated on is large, however the site of the composting operations is only undertaken on a small portion, identified in Attachment 1 of the EPN (Appendix C). The land outside the footprint is not used by DWM for composting and has been purposely retained in a natural state by DWM to provide habitat for native flora and fauna. An area to the east of the DWM landfill site has been established as an offset reserve through a Forest Practices Plan (FPP No. GEW0157) under the Forest Practices Act 1985.[3]

The leachate storage dam is surrounded by a 3m high security fence, designed to keep out access by people and animals. Water birds are occasionally observed on the dam. A Flora and Fauna Information Sheet, which identifies local natural values and discusses the need to protect the plants and animals around the site, is available for all any personnel onsite. The most significant adverse impact on native wildlife from the DORF is being a regular food source for feral cats, which also occur at the landfill. The impact of feral cats on native birds and small animals is well known in Tasmania and is an unfortunate result from an activity that has such positive environmental benefits in other ways. A cat trapping program has been implemented in previous years and continues on a routine basis. This is conducted by a licenced contractor.

5.5.9 Cultural and aboriginal heritage

There are no known adverse impacts on cultural or aboriginal heritage from the operations at the DORF.

[3] COVA, 2022. *Environmental Effects Report – Dulverton Organics Transformation*.

5.6 The local environment

The Local Environment Surrounding the DORF is the Dulverton landfill (to the northeast), privately-owned forest plantations, (to the north, west and south), and a pine plantation (to the east) owned by DWM. Some natural vegetation follows Caroline Creek on the eastern boundary of the landfill site. In the wider vicinity, to the south and west there continues large plantations and areas of native vegetation. On the eastern side, there is pasture and to the northwest of the site there are small farm holding and 'lifestyle' blocks, much of which is also pasture. Access to these properties is by gravel road.

Cement Australia operates a site near Railton, approximately 3kms south of the DORF. A railway line is in place for freight transport including deliveries from the cement plant to the port at Devonport, and this more or less follows the eastern boundary of the DWM landfill site.

For an extended period DWM has leased a small area of land located to the northeast of the landfill to Costa Group for making compost for mushroom growing. This lease ended in early 2020/21 with the Costa Group closing their mushroom growing facility. The area previously leased to Costa Group is now being used for screening and stockpiling DWM compost.

5.7 The regional environment

The DRWMA landfill is located within the Mersey catchment, as defined in the *Environmental Management Goals for Tasmanian Surface Waters – Mersey December 2001.* The landfill is located on what is defined as "private land" in the report[4].

Meteorological data from the nearest weather station at Railton is presented in Table 3 below.

Table 3 Average temperature and rainfall data for the site

Month	Mean maximum temp (Celsius)	Mean minimum temp (Celsius)	Mean rainfall (mm)
January	22.3	10.9	62.1
June	11.6	3.9	113.8

(Source: eldersweather.com.au)

There are air monitoring stations in Sheffield and Latrobe, both of these stations regularly advise air quality to be good to fairly good (EPA.tas.gov.au/epa/air/monitoring-air-pollution) The typical prevailing winds are westerly.

5.8 Significant changes during the reporting period

The following significant changes to the site and / or operations are noted to have occurred during the reporting period:

– Veronica Schilling was appointed as the new Chief Executive Officer in November 2022.
– Progress towards construction and operation of the new Dulverton Organics Transformation (DOT) Project has continued, see **https://dulverton.com.au/compost/facility-upgrade/** for project details. Notably, the EPA approved the project in November 2022, and ground was first broken on December 12th, 2022. The permit issued by the EPA for the activity (Permit Part B – Environmental No. 10889) is attached as Appendix B.

[4] GHD, 2023. *Annual Landfill Monitoring Report 2022*. Prepared for Dulverton Regional Waste Management Authority.

6. Permit conditions

A copy of EPN 7852/1 is attached in Appendix C.

7. Relevant environmental legislation

The following Environmental Legislation is relevant to the site and operations:

- Environmental Management and Pollution Control Act 1994 (Tas)
- Land Use Planning and Approvals Act 1993 (Tas)
- Threatened Species Protection Act 1995 (Tas)
- Weed Management Act 1999 (Tas)
- State Policy on Water Quality Management 1997
- Tasmanian Biosolids Reuse Guidelines 1999
- AS/NZS ISO 14001:2015 – Environmental Management Systems

8. Complaints received by the public/non-compliance with permit conditions

Complaints received by the public are recorded as Corrective Action Requests (CAR's) by DWM, as are any environmental incidents that occur at the site. The structure of the system under the EMS requires DWM staff to resolve the situation, then implement any reasonable actions that will prevent a recurrence. All action taken, and by whom, is recorded on the Register, which is reviewed by the DWM Board at each meeting and supplied to the EPA in every Environmental Annual Review. See Appendix D for details of all complaints and incidents that occurred during the reporting period.

9. Infringement notices and EPNs

The DORF is permitted to operate under the conditions of Environmental Protection Notice 7852/1. In addition, the EPA issued an approval notice (10065/1) allowing DWM to compost Liquid Wastes (subject to conditions).

Permit Part B – Environmental No. 10889 was issued to DWM in November 2022 for operation of the new Dulverton Organics Transformation (DOT) facility (attached as Appendix B).

10. Actions under EMPCA: environmental agreements, improvement programs, and mandatory environmental audits

During the reporting period no environmental agreements or improvement programs were required or implemented.

The following audits against DWM's EMS were carried out:

– TRE Solutions, November 2020 – AS/NZS ISO 14001:2015 Internal Audit
– BSI, June 2021 – Assessment Report – Dulverton Waste Management
– TRE Solutions, September 2021 – AS/NZS ISO 14001: 2016 Internal Audit
– BSI, May 2022 - Assessment Report – Dulverton Waste Management
– BSI, May 2023 – Assessment Report - Dulverton Waste Management
– The EPA carried out an audit of Condition 9 of the EPN (Annual Environmental Review) in June 2020.

A copy of the audit reports and current EMS certification are provided in Appendix E.

11. Prosecution and enforcement action

No proceedings have been taken in relation to the activity in the reporting period, either under Tasmanian or Commonwealth environmental legislation, other legislation, or local government bylaws.

12. Environmental monitoring

Environmental monitoring is carried out by an independent consulting company. DWM engaged GHD to carry out this work during the reporting period. A copy of the most recent report is attached in Appendix F.

13. Staff and contractor environmental training

Before commencing work, all personnel must be inducted onto the site. This involves viewing a professionally made video, then reading through a number of Safe Work Method Statements (SWMS) with the Site Supervisor and ‘signing on’ to them. A booklet is also provided that provides further detail on the topics discussed in the video, which personnel are to keep in their vehicle and refer to later.

All these documents provide information about the Environmental Management System (EMS) used on the DWM landfill and DORF sites, and the higher risk (to the environment) activities on site. After inductions, personnel working on site are required to participate in an EMS Awareness session, to develop further understanding of the legal requirements of DWM’s operation and expand their general knowledge.

In regard to signing on to SWMS, this is a requirement for high-risk construction activities and are used by DWM for all activities where control measures are required to minimise risk, whether they be ongoing day-to-day tasks or one-off project works.

To ensure that the EMS is a relevant and useful tool for daily operations, DWM expands on the SWMS work health and safety format by requiring that staff writing the SWMS consider the steps involved in the activity and any potential environmental impacts it may have. Any necessary control measures are then listed for site personnel to understand and adhere to.

In addition to this, the site contractor has regular toolbox meetings using a template form to provide an agenda and records the minutes. This agenda includes the review of one EMS Work Instruction, one EMS Procedure, and one SWMS. This assists in maintaining awareness of the system and giving staff a broader understanding of site operations other than their specific role.

During 2022, DWM Administration Officer staff accompanied GHD environmental field staff during monitoring events to observe surface and groundwater sampling methods.

14. Community engagement

No formal community engagement has been entered into in this reporting period in relation to activities at the DORF. Site tours are conducted for interested parties by DWM upon request. DWM regularly reports to its four owner-Councils and Board to provide information about the activities at the DORF. Members of these groups can then disseminate information as they see fit.

15. Environmental management over and above permit requirements

Since July 2008, DWM has implemented an Environmental Management System (EMS) to ensure that best practice operations are carried out on both the landfill and composting sites. There have been numerous benefits to DWM by implementing this system, and the significant effort it takes to maintain a certified system continues to be supported by the Owner-Councils and the Board.

The overall aim of the EMS is to ensure that the site is operated at the optimum level of environmental management, but as noted previously DWM incorporate work health and safety requirements, to ensure an active and relevant system.

16. Commitments to improve future environmental performance

All personnel involved with DWM – Board, staff, and site contractors – are committed to continual improvement and refinement of the Environmental Management System (EMS) as the best method of assessing and managing environmental issues.

17. Statement by Chief Executive Officer

“I hereby acknowledge that the contents of this report are a true and accurate record of the activities at the Dulverton Organics Recycling Facility for the reporting period”.

……

Veronica Schilling

Chief Executive Officer

Dulverton Waste Management

Appendices

Appendix A

Environmental policy

Environmental Policy

OBJECTIVE

Dulverton Waste Management (DWM) is committed to responsible environment management and the pursuit of providing a safe and sustainable waste management, minimisation and recycling service for our community.

LEGISLATION

Environmental Management & Pollution Control Act 1994 (Tas)

DEFINITIONS

Environmental Management System (EMS)	An Environmental Management System (EMS) is a structured management tool which provides a methodical approach to planning, implementing and reviewing the performance of an organisation in regard to its compliance obligations for environmental management. It follows the standards set out in AS/NZS ISO 14001:2015, and is regularly audited independently to assess adherence and for ongoing improvement.
Stakeholders	a person or group that has an investment, share, or interest in something, as a business or industry.

RESPONSIBILITIES

Board:

- To provide the financial and human resources required to support the objectives of this policy.

Chief Executive Officer:

- To provide the systems and procedures to support the objectives of this policy

Employees, Contractors & Sub-Contractors:

- To comply with all the systems and procedures relating to the environment;
- To at all times consider the effect of an activity on the environment; and
- To discontinue an activity if it becomes apparent that environmental harm may occur.

POLICY STATEMENT

DWM is committed to:

- Playing a leading role in promoting best practice in our industry;
- Protection of the local environment and minimisation of waste;
- Compliance with applicable compliance obligations and with other requirements to which the organisation subscribes;
- Communicating with all persons working for or on behalf of the organization the requirements of the Environmental Management System (EMS);
- Minimising and where possible avoid adverse impacts on our stakeholders, environment and social surrounds;
- The reduction of suitable waste stream volumes to landfill, through effective reuse, composting and minimization strategies; and
- Understanding and minimising our greenhouse gas contribution

DWM will:

- Actively pursue continual improvement in environmental management;
- Provide a framework for setting and reviewing environmental objectives and targets;
- Implement and maintain an Environmental Management System (EMS) certified to ISO 14001:2015; and
- Regularly review its environmental performance through:
    - Management review of the system;
    - Progress against objectives and targets; and
    - An internal and external audit.

OTHER KEY RELATED POLICIES

Nil

REVIEW

This policy will be reviewed every four years or as required by the Board.

REFERENCE			
APPROVED BY:	DWM Board of Directors	**MINUTE NO:**	MFID 1570156
APPROVAL DATE:	12th August 2020	**REVIEW DATE:**	by September 2024

Appendix B

DOT permit

PERMIT PART B
PERMIT CONDITIONS - ENVIRONMENTAL No. 10889

Issued under the *Environmental Management and Pollution Control Act 1994*

Activity: **The operation of a composting facility (ACTIVITY TYPE: Resource Recovery)**
DULVERTON COMPOSTING OPERATION, YOUNGMANS ROAD, RAILTON TAS 7305 Accessed from Dawsons Siding Road, LATROBE TAS 7307.

The above activity has been assessed as a level 2 activity under the *Environmental Management and Pollution Control Act 1994*.

Acting under Section 25(5)(a)(i) of the EMPCA, the Board of the Environment Protection Authority has required that this Permit Part B be included in any Permit granted under the *Land Use Planning and Approvals Act 1993* with respect to the above activity.

Municipality: **LATROBE**
Permit Application Reference: **DA 304/2021**
EPA file reference: **21/2416**

Date conditions approved: 16 November 2022

Signed: _____

CHAIRPERSON, BOARD OF THE ENVIRONMENT PROTECTION AUTHORITY

DEFINITIONS

Unless the contrary appears, words and expressions used in this Permit Part B have the meaning given to them in **Schedule 1** of this Permit and in the EMPCA. If there is any inconsistency between a definition in the EMPCA and a definition in this Permit Part B, the EMPCA prevails to the extent of the inconsistency.

ENVIRONMENTAL CONDITIONS

The person responsible for the activity must comply with the conditions contained in **Schedule 2** of this Permit Part B.

INFORMATION

Attention is drawn to **Schedule 3**, which contains important additional information.

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Attachments

Schedule 1: Definitions

In this Permit Part B:-

Activity means any environmentally relevant activity (as defined in Section 3 of EMPCA) to which this document relates, and includes more than one such activity.

Air Quality EPP means the *Environment Protection Policy (Air Quality) 2004*, or any subsequent revision of this policy.

Authorized Officer means an authorized officer under section 20 of EMPCA.

Classification And Management Of Contaminated Soil For Disposal means the document *Information Bulletin No. 105 Classification and Management of Contaminated Soil for Disposal, version 3 2018,* published by the Environment Protection Authority and includes any subsequent versions of this document.

Conceptual Site Model or C**SM** means a representation of site-related information regarding contamination sources, receptors and exposure pathways between those sources and receptors in accordance with Schedule B2 of the NEPM.

Construction means activities associated with the construction phase of the activity, including but not limited to, the laying of concrete.

Control Location (Noise) means a location chosen to represent the general ambient sound without contribution from noise sources at the activity.

Controlled Waste has the meaning described in Section 3(1) of EMPCA.

Director means the Director, Environment Protection Authority holding office under Section 18 of EMPCA and includes a delegate or person authorised in writing by the Director to exercise a power or function on the Director's behalf.

DRP means Decommissioning and Rehabilitation Plan.

Dulverton Landfill means the Dulverton Regional Waste Management Authority landfill located on certificate of title 153999/1.

EMPCA means the *Environmental Management and Pollution Control Act 1994*.

Environmental Harm and **Material Environmental Harm** and **Serious Environmental Harm** each have the meanings ascribed to them in Section 5 of EMPCA.

Environmental Nuisance and **Pollutant** each have the meanings ascribed to them in Section 3 of EMPCA.

Environmentally Hazardous Material means any substance or mixture of substances of a nature or held in quantities which present a reasonably foreseeable risk of causing serious or material environmental harm if released to the environment and includes fuels, oils, waste and chemicals but excludes sewage.

Information Bulletin No. 105 means the document titled *Information Bulletin No. 105 - Classification and Management of Contaminated Soil for Disposal*, Version 3, 2018, by the EPA, and includes any subsequent version of this document.

Leachate means any liquid that is either released by or has percolated through waste.

Liquid Waste means any waste that is in liquid form or is substantially comprised of free liquids or is not spadeable (able to be lifted and moved in heaps with a spade).

Noise Sensitive Premises means residences and residential zones (whether occupied or not), schools, hospitals, caravan parks and similar land uses involving the presence of individual people for extended periods, except in the course of their employment or for recreation.

Person Responsible is any person who is or was responsible for the environmentally relevant activity to which this document relates and includes the officers, employees, contractors, joint venture partners and agents of that person, and includes a body corporate.

Reporting Period means the 12 months ending on 30 November of each year.

Stormwater means water traversing the surface of The Land as a result of rainfall.

Suitable Surveyor means a person, registered as a surveyor under the *Surveyors Act 2002*, who is an independent person in respect of the activity.

Tasmanian Noise Measurement Procedures Manual means the document titled *Noise Measurement Procedures Manual*, by the Department of Environment, Parks, Heritage and the Arts, dated July 2008, and any amendment to or substitution of this document.

The Land means the land on which the activity to which this document relates may be carried out, and includes: buildings and other structures permanently fixed to the land, any part of the land covered with water, and any water covering the land. The Land falls within the area defined by:

1. Certificate of title 131878/1; and
2. as shown at Attachment 1.

Trigger Levels a monitoring parameter level, or combination of different parameter levels or conditions, that indicate the potential for environmental harm, and that initiate an event like repeat sampling, an investigation, or corrective action.

Waste has the meaning ascribed to it in Section 3 of EMPCA.

Wastewater means spent or used water (whether from industrial or domestic sources) containing a pollutant and includes stormwater which becomes mixed with wastewater.

Weed means a declared weed as defined in the *Weed Management Act 1999*.

wet commissioning means the addition of the first waste material to be composted.

Schedule 2: Conditions

Maximum Quantities

Q1 Regulatory limits

1 The activity must not exceed the following limits :

1.1 25,000 tonnes per year of production of compost or mushroom substrate.

General

G1 Access to and awareness of conditions and associated documents

A copy of these conditions and any associated documents referred to in these conditions must be held in a location that is known to and accessible to the person responsible for the activity. The person responsible for the activity must ensure that all persons who are responsible for undertaking work on The Land, including contractors and sub-contractors, are familiar with these conditions to the extent relevant to their work.

G2 No changes without approval

1 The following changes, if they may cause or increase the emission of a pollutant which may cause material or serious environmental harm or environmental nuisance, must only take place in relation to the activity if such changes have been approved in writing by the EPA Board following its assessment of an application for a permit under the *Land Use Planning and Approvals Act 1993*, or approved in writing by the Director:

1.1 a change to a process used in the course of carrying out the activity; or

1.2 the construction, installation, alteration or removal of any structure or equipment used in the course of carrying out the activity; or

1.3 a change in the quantity or characteristics of materials used in the course of carrying out the activity.

G3 Incident response

If an incident causing or threatening environmental nuisance, serious environmental harm or material environmental harm from pollution occurs in the course of the activity, then the person responsible for the activity must immediately take all reasonable and practicable action to minimise any adverse environmental effects from the incident.

G4 Change of responsibility

If the person responsible for the activity intends to cease to be responsible for the activity, that person must notify the Director in writing of the full particulars of any person who will become the person responsible for the activity, before such cessation.

G5 Change of ownership

If the owner of The Land upon which the activity is carried out changes or is to change, then, as soon as reasonably practicable but no later than 30 days after becoming aware of the change or intended change in the ownership of The Land, the person responsible must notify the Director in writing of the change or intended change of ownership.

G6 Complaints register

1 A public complaints register must be maintained. The public complaints register must, as a minimum, record the following detail in relation to each complaint received in which it is alleged that environmental harm (including an environmental nuisance) has been caused by the activity:

1.1 the date and time at which the complaint was received;

1.2 contact details for the complainant (where provided);

1.3 the subject matter of the complaint;

1.4 any investigations undertaken with regard to the complaint; and

1.5 the manner in which the complaint was resolved, including any mitigation measures implemented.

2 Complaint records must be maintained for a period of at least 3 years.

G7 Annual Environmental Review

1 Unless otherwise specified in writing by the Director, a publicly available Annual Environmental Review for the activity must be submitted to the Director each year within three months of the end of the reporting period. Without limitation, each Annual Environmental Review must include the following information:

1.1 a statement by the General Manager, Chief Executive Officer or equivalent for the activity acknowledging the contents of the Annual Environmental Review;

1.2 subject to the *Personal Information Protection Act 2004*, a list of all complaints received from the public during the reporting period concerning actual or potential environmental harm or environmental nuisance caused by the activity and a description of any actions taken as a result of those complaints;

1.3 details of environment-related procedural or process changes that have been implemented during the reporting period;

1.4 a summary of the amounts (tonnes or litres) of both solid and liquid wastes produced and treatment methods implemented during the reporting period. Initiatives or programs planned to avoid, minimise, re-use, or recycle such wastes over the next reporting period should be detailed;

1.5 details of all non-trivial environmental incidents and/or incidents of non compliance with these conditions that occurred during the reporting period, and any mitigative or preventative actions that have resulted from such incidents;

1.6 a summary of the monitoring data and record keeping required by these conditions. This information should be presented in graphical form where possible, including comparison with the results of at least the preceding reporting period. Special causes and system changes that have impacted on the parameters monitored must be noted. Explanation of significant deviations between actual results and any predictions made in previous reports must be provided;

1.7 identification of breaches of limits specified in these conditions and significant variations from predicted results contained in any relevant DPEMP or EMP, an explanation of why each identified breach of specified limits or variation from predictions occurred and details of the actions taken in response to each identified breach of limits or variance from predictions;

1.8 a list of any issues, not discussed elsewhere in the report, that must be addressed to improve compliance with these conditions, and the actions that are proposed to address any such issues;

1.9 a summary of fulfilment of environmental commitments made for the reporting period. This summary must include indication of results of the actions implemented and explanation of any failures to achieve such commitments; and

1.10 a summary of any community consultation and communication undertaken during the reporting period.

G8 Environmental Management Plan and review thereof

1 Unless otherwise specified in writing by the Director, an Environmental Management Plan - Operations ('EMP Operations') for the activity must be submitted to the Director for approval by whichever of the following dates occurs first and at five yearly intervals thereafter:

1.1 In the case of the Director having approved a previous EMP Operations, the fifth anniversary of the date of that approval;

1.2 The fifth anniversary of the date on which these conditions take effect; or

1.3 A date specified in writing by the Director.

2 The EMP Operations must include a statement by the General Manager, Chief Executive Officer or equivalent for the activity acknowledging the contents of the EMP Operations.

3 The EMP Operations must detail the potential environmental impacts arising from the ongoing operation of the activity over the next 5 years, including a strategic consideration of potential changes to the activity during that period and consideration of opportunities to implement continuous improvement.

4 The EMP Operations must separately identify specific commitments, with actions and timeframes, to mitigate or prevent the identified potential environmental impacts. In preparing the EMP Operations the person responsible must take into account the contents of any previous annual environmental reviews including complaints, incidents and monitoring data.

5 If the Director issues guidelines for preparation of the EMP Operations, the EMP Operations must address the matters listed in those guidelines.

6 Unless otherwise specified in writing by the Director, the EMP Operations must not be implemented until it has been approved. Once approved the activity must be carried out in accordance with the approved EMP Operations, as may be amended or replaced from time to time with written approval of the Director.

G9 Notification prior to wet commissioning

At least 14 days prior to the commencement of wet commissioning of the in-vessel composting facility, the person responsible must notify the Director in writing of the date on which wet commissioning is expected to commence.

G10 Emergency Response Plan

Unless otherwise approved in writing by the Director, a detailed and site-specific Emergency Response Plan must be prepared and submitted to the Director for approval at least 30 days prior to the notification of commencement of operations. The Plan must be prepared in consultation with the Director, the State Emergency Service and the Tasmanian Fire Service. The activity must not commence until the Plan has been approved by the Director. Once approved, the activity must be undertaken in accordance with the Plan which has been approved in writing by the Director, and any subsequent amendment to the Plan approved in writing by the Director.

Atmospheric

A1 Covering of vehicles

Vehicles carrying loads containing material which may blow or spill must be equipped with effective control measures to prevent the escape of the materials from the vehicles when they leave The Land or travel on public roads. Effective control measures may include tarpaulins or load dampening.

A2 Control of dust emissions

Dust emissions from The Land must be controlled to the extent necessary to prevent environmental nuisance beyond the boundary of The Land.

A3 Odour management

The person responsible must institute such odour management measures as are necessary to prevent odours causing environmental nuisance beyond the boundary of The Land.

A4 Odour Management Plan

1 Unless otherwise approved in writing by the Director, an Odour Management Plan must be submitted to the Director for approval at least three (3) months prior to notification of the commencement of wet commissioning.

2 The Odour Management Plan must include, but not necessarily be limited to:

2.1 an inventory of all potential odour sources at the Activity;

2.2 an overview of the odour collection and abatement equipment in operation at the Activity;

2.3 details of any proposed actions to be implemented to mitigate anticipated odours caused by any aspect of the Activity;

2.4 contingency measures for unforeseen events such as power failures, fires, flooding, equipment breakdown, or process failure, to mitigate the risk of increasing odour emissions;

2.5 a proposed methodology and frequency for regular odour inspections to be undertaken to ensure odours at the Activity are minimised to levels that are unlikely to cause environmental nuisance at nearby sensitive receptors;

2.6 details of a proposed biofilter and scrubber maintenance and management program to ensure their optimal performance, taking into consideration intermittent and variable production rates, odour input sources and flow rates. Details must include monitoring parameters, methodology, and proposed ongoing monitoring frequency, and should include details of key indicators for monitoring performance of biofilters and scrubbers; and

2.7 a procedure for recording and acting upon any increase in odour emissions.

3 The requirements of this condition will be deemed to be satisfied only when the Director indicates in writing that the submitted document adequately addresses the requirements of this condition to his or her satisfaction.

4 The Activity must be undertaken in accordance with the approved Odour Management Plan, and any subsequent amendments to the Plan, as approved in writing by the Director.

A5 Odour sampling

1 Unless otherwise approved in writing by the Director, sampling of odour emissions from the activity must be undertaken within 15 months of notification of wet commissioning, and at any other time as required in writing by the Director.

2 The proposed odour sampling methodology must be submitted to the Director for approval 30 days prior to notification of wet commissioning.

3 The methodology must include:

3.1 identification of potential odour sources on The Land;

3.2 proposals for measurement of odour emissions from the identified odour sources;

3.3 recommendations for seasonal and operating conditions most suitable for undertaking the odour sampling; and

3.4 a timetable for the completion of the odour sampling.

4 Sampling of odour emissions must be conducted by personnel or laboratories approved by the Director and in accordance with methods approved by the Director.

5 An Odour Sampling Report containing odour sampling results must be submitted to the Director within two (2) months of odour sampling required by this condition being completed.

6 Unless otherwise approved in writing by the Director, the Odour Sampling Report must include the following information:

6.1 the location and operational characteristics of all identified odour sources;

6.2 odour emission rates determined in the odour sampling; and

6.3 plant condition at the time of sampling.

A6 Atmospheric Dispersion Modelling

1 Within 30 days of the submission of the Odour Sampling Report required by Condition A5, a proposed atmospheric dispersion modelling methodology must be submitted to the Director for approval.

2 Unless otherwise approved in writing by the Director, Atmospheric Dispersion Modelling must be completed in accordance with the approved methodology, and a report submitted to the Director, within two (2) months of submission of the Odour Sampling Report.

3 The atmospheric dispersion modelling must be conducted by personnel or a consultancy approved by the Director, and in accordance with methods approved by the Director.

4 The atmospheric dispersion modelling results must be provided in the form of a written report and must include:

4.1 a map of The Land and surrounding area showing the following particulars:

4.1.1 the location of all odour sources;

4.1.2 the boundary of The Land;

4.1.3 ground level concentration contours (isopleths) of odour with a key or legend; and

4.1.4 the location of the nearest sensitive receptors.

4.2 details of the limits and criteria specified in the Air Quality EPP that are relevant to the activity;

4.3 modelled odour concentrations predicted by the model at the boundary of The Land and at the nearest sensitive receptors;

4.4 identification of any exceedances of the relevant limits and criteria specified in the Air Quality EPP; and

4.5 details of mitigation measures proposed to address each identified exceedance of the relevant limits or criteria in the Air Quality EPP.

A7 Biofilter monitoring

1 Unless otherwise approved in writing by the Director, the biofilters must be monitored by a suitably qualified person to evaluate the condition and performance of the biofilters as follows:

1.1 Within three (3) months of the notification of wet commissioning;

1.2 Quarterly thereafter for a period of 24 months from the date of the first monitoring event;

1.3 Bi-annually from 24 months to 48 months from the date of the first monitoring event; and

1.4 At least annually thereafter, or as otherwise required in writing by the Director.

2 The evaluation of the condition and performance for each of the biofilters must include, but not necessarily be limited to:

2.1 measurement of the flow rate, temperature, relative humidity and the differential pressure of the gas at the inlet to the biofilter;

2.2 measurement of odour concentration in odour units, at the inlet and outlet of the biofilter; and

2.3 description of characteristic and hedonic tone.

3 Records of the biofilter monitoring must be retained for a period not less than three (3) years and must be made available to an Authorized Officer on request.

Construction

CN1 Construction Environmental Management Plan

1 At least 30 days prior to the commencement of construction activities, or by a date otherwise specified in writing by the Director, a Construction Environmental Management Plan ('Construction EMP') must be submitted to the Director for approval.

2 The Construction EMP must contain a detailed description of the proposed timing and sequence of the major construction activities and of the proposed management measures to be implemented to avoid or minimise the environmental impacts during the construction phase. The Construction EMP must include, but not necessarily be limited to, management measures in relation to the following:

2.1 prevention of impacts upon surface water and waterways;

2.2 stormwater management, including erosion and sediment controls;

2.3 odour control;

2.4 noise control;

2.5 dust control;

2.6 management of environmentally hazardous materials;

2.7 cultural (Aboriginal and non-aboriginal) heritage considerations;

2.8 flora and fauna management;

2.9 weed, pest and disease management;

2.10 quality control arrangements including supervision by appropriately qualified and experienced persons, detailed construction specifications for key items of environmental management infrastructure, documented site procedures, quality control testing and the keeping of appropriate records; and

2.11 acid sulphate soil management (if identified in pre construction testing).

3 Construction must not commence until the Construction EMP has been approved by the Director.

4 Unless otherwise specified in writing by the Director, construction activities must be carried out in accordance with an approved Construction EMP.

CN2 Operating hours - Construction

1 Unless otherwise approved in writing by the Director:

1.1 Construction activities must not be undertaken outside 0700 hours to 1700 hours Monday to Friday; and

1.2 Notwithstanding the above paragraph, the construction activities must not be carried out on Saturdays, Sundays or Public Holidays that are observed State-wide (Easter Tuesday excepted).

Decommissioning And Rehabilitation

DC1 Temporary suspension of activity

1 Within 30 days of becoming aware of any event or decision which is likely to give rise to the temporary suspension of the activity, the person responsible for the activity must notify the Director in writing of that event or decision. The notice must specify the date upon which the activity is expected to suspend or has suspended.

2 During temporary suspension of the activity:

2.1 The Land must be managed and monitored by the person responsible for the activity to ensure that emissions from The Land do not cause serious environmental harm, material environmental harm or environmental nuisance; and

2.2 If required by the Director a Care and Maintenance Plan for the activity must be submitted, by a date specified in writing by the Director, for approval. The person responsible must implement the approved Care and Maintenance Plan, as may be amended from time to time with written approval of the Director.

3 Unless otherwise approved in writing by the Director, if the activity on The Land has substantially ceased for 2 years or more, rehabilitation of The Land must be carried out in accordance with the requirements of these conditions as if the activity has permanently ceased.

DC2 Notification of cessation

Within 30 days of becoming aware of any event or decision which is likely to give rise to the permanent cessation of the activity, the person responsible for the activity must notify the Director in writing of that event or decision. The notice must specify the date upon which the activity is expected to cease or has ceased.

DC3 DRP requirements

Unless otherwise approved in writing by the Director, a Decommissioning and Rehabilitation Plan (DRP) for the activity must be submitted for approval to the Director within 30 days of the Director being notified of the planned cessation of the activity or by a date specified in writing by the Director. The DRP must be prepared in accordance with any guidelines provided by the Director.

DC4 Rehabilitation following cessation

1 Following permanent cessation of the activity, and unless otherwise approved in writing by the Director, The Land must be rehabilitated including:

1.1 stabilisation of any land surfaces that may be subject to erosion;

1.2 removal or mitigation of all environmental hazards or land contamination, that might pose an on-going risk of causing environmental harm; and

1.3 decommissioning of any equipment that has not been removed.

2 Where a Decommissioning and Rehabilitation Plan (DRP) has been approved by the Director, decommissioning and rehabilitation must be carried out in accordance with that plan, as may be amended from time to time with written approval of the Director.

Discharge

DS1 Firefighting wastewater

In the event of a fire, potentially contaminated wastewater arising from firefighting must be treated on The Land to the satisfaction of the Director or removed from the site by a person holding all necessary approvals for such transport.

Effluent Disposal

E1 Stormwater

Unless otherwise approved in writing by the Director, polluted stormwater that will be discharged from The Land must be directed to the Dulverton Landfill stormwater management system. Treatment of polluted or potentially polluted stormwater must occur prior to discharge to the environment, to the extent necessary to prevent serious or material environmental harm, or environmental nuisance.

E2 Retention of sediment

During construction activities all reasonable measures must be implemented to ensure that solids entrained in stormwater traversing the construction site are retained on The Land. Such measures may include provision of strategically located sediment fences, and appropriately sized and maintained sediment settling ponds.

E3 Perimeter drains or bunds

1 Perimeter cut-off drains, or bunds, must be constructed at strategic locations on The Land to prevent surface run-off from entering the area used or disturbed in carrying out the activity. All reasonable measures must be implemented to ensure that sediment transported along these drains, or bunds, is directed to the Dulverton Landfill stormwater management system. Such measures may include provision of strategically located sediment fences, appropriately sized and maintained sediment settling ponds, vegetated swales, detention basins and other measures designed and operated in accordance with the principles of the Best Practice Erosion and Sediment Control document.

2 Drains, or bunds, must have sufficient capacity to contain run-off that could reasonably be expected to arise during a five (5) percent annual exceedance probability rainfall event. Maintenance activities must be undertaken regularly to ensure that this capacity does not diminish.

E4 Leachate management

1 A leachate collection system must be installed to prevent leachate generated during operation of the activity from polluting groundwater or surface waters.

2 Leachate on The Land must be managed such that:

2.1 it does not cause an odour nuisance beyond the boundary of The Land; and

2.2 human contact with leachate is minimised.

3 Any waters that have been, or have potentially been, in contact with waste(s) must be captured by the leachate collection system.

Hazardous Substances

H1 Spill kits

Spill kits appropriate for the types and volumes of materials handled on The Land must be kept in appropriate locations and maintained in a functional condition to assist with the containment of spilt environmentally hazardous materials.

H2 Storage and handling of hazardous materials

1 Unless otherwise approved in writing by the Director, environmentally hazardous materials held on The Land must be:

1.1 stored within impervious bunded areas, spill trays or other containment systems; and

1.2 managed to prevent unauthorised discharge, emission or deposition of pollutants:

1.2.1 to soils within the boundary of The Land in a manner that is likely to cause serious or material environmental harm;

1.2.2 to groundwater;

1.2.3 to waterways; or

1.2.4 beyond the boundary of The Land.

H3 Handling of hazardous materials - mobile

1 Where mobile containment of environmentally hazardous materials is utilised for the fuelling or servicing of mobile or fixed plant on The Land, all reasonable measures must be implemented to prevent unauthorised discharge, emission or deposition of pollutants:

1.1 to soils within the boundary of The Land in a manner that is likely to cause serious or material environmental harm;

1.2 to groundwater;

1.3 to waterways; or

1.4 beyond the boundary of The Land.

2 Reasonable measures may include spill kits, spill trays/bunds or absorbent pads, and automatic cut-offs on any pumping equipment.

H4 Record of controlled wastes

1 A record of all controlled waste received or generated on The Land must be kept. This record must include:

1.1 the controlled waste category set down in the *National Environment Protection (Movement of Controlled Waste Between States and Territories) Measure 1998* and waste code associated with the waste category, or where applicable, the description of the controlled waste as defined in the *Environmental Management and Pollution Control (Waste Management)* Regulations *2020*;

1.2 the quantity of controlled waste received or generated;

1.3 the fate (e.g. stored, disposed or transported off The Land) of the controlled waste;

1.4 where available, the person or organisation which generated the waste.

Monitoring

M1 Samples and measurements for monitoring purposes

1 Any sample or measurement required under these conditions must be taken and processed in accordance with the following:

1.1 sampling and measuring must be undertaken by a person with training, experience, and knowledge of the appropriate procedure;

1.2 the integrity of samples must be maintained prior to delivery to a testing facility;

1.3 sample analysis must be conducted by a testing facility accredited by the National Association of Testing Authorities (NATA), or a testing facility approved in writing by the Director, for the specified test;

1.4 details of methods employed in taking samples and measurements and results of sample analysis, and measurements must be retained for at least three (3) years after the date of collection; and

1.5 sampling and measurement equipment must be maintained and operated in accordance with manufacturer's specifications and records of maintenance must be retained for at least three (3) years.

M2 Waste data reporting

1 The person responsible must submit a report to the Director detailing the quantity (in tonnes) of compost produced (for example, which does not meet the pasteurisation standards of the *Australian Standard AS 4454: 2012 Composts, soil conditioners and mulches*), and/or any other waste materials produced associated with the Activity (for example, packaging), which are disposed of to landfill during each financial year.

2 The report must be in a format approved in writing by the Director, and submitted to the Director within three (3) months of the end of the reporting period.

M3 Water Monitoring Plan

1 Within six (6) months of these conditions taking effect, or by a date otherwise specified in writing by the Director, a Water Monitoring Plan (WMP) must be submitted for approval in writing by the Director.

2 Unless otherwise approved in writing by the Director the WMP must:

2.1 be prepared in accordance with any relevant guidance provided by the Director.

2.2 include within its scope surface water, groundwater and leachate, for the purpose of detecting environmental harm arising from the activity;

2.3 without limitation include:

2.3.1 a Conceptual Site Model (CSM), including potential source-pathway-receptor linkages;

2.3.2 details and justification for:

2.3.2.1 monitoring locations, including a map(s) and table(s) of coordinates;

2.3.2.2 sampling frequency and measurement parameters; and

2.3.2.3 sampling and measurements methods.

2.3.3 quality assurance and quality control procedures;

2.3.4 where applicable, trigger levels, and actions to be taken when those trigger levels are met;

2.3.5 a table containing all the major requirements in the WMP;

2.3.6 an implementation timetable for key aspects of the WMP; and

2.3.7 a reporting program to regularly advise the Director of the progress in implementing the WMP.

2.4 Where the WMP requires the installation of new groundwater bores, those bores must be installed within six (6) months of the date on which the Director approves the WMP.

2.5 The Director must be notified of the installation of any bore specified by the WMP within three (3) months of its completion and a geological log and completion report, including surveyed location and elevation for each newly installed bore, must be provided with the notification. Surveying must be undertaken by a suitable surveyor.

3 Unless otherwise specified by the Director, the WMP must not be implemented until it has been approved by the Director, and once approved, the monitoring of the activity must be carried out in accordance with the WMP.

4 In the event that the Director, by notice in writing, either approves a minor variation to the approved WMP or approves a new WMP, the person responsible must implement and act in accordance with the varied WMP or the new WMP, as the case may be.

M4 Water Monitoring Reporting

1 In the event that any trigger levels in the WMP are exceeded, the Director must be notified of the exceedance and the follow up actions taken, within five (5) working days of the person responsible becoming aware of the exceedance.

2 Within three (3) months of the end of the reporting period a Water Monitoring Report (WMR) for the activity must be submitted for approval in writing by the Director.

3 Unless otherwise specified in writing by the Director, the WMR must be prepared in a form approved by the Director and in accordance with any guidelines, if supplied, relating to the preparation or provision of information within the WMR, and without limitation must, include:

3.1 the date(s) and time(s) of measurements;

3.2 method(s) used to produce the measurements;

3.3 results and interpretation of results, including assessment of temporal trends;

3.4 an assessment of quality assurance and quality control measures;

3.5 actions taken in response to trigger levels being met;

3.6 if applicable, an updated Conceptual Site Model (CSM) that reflects contemporary understanding of the activity and its impacts;

3.7 where source-pathway-receptor linkages are identified, an assessment of the risk to human health and the environment;

3.8 an assessment of the adequacy of the management measures in place and recommendations on what, if any, additional management measures are required, to address the identified risks to human health and the environment; and

3.9 an assessment of the adequacy of the Water Management Plan (WMP) to detect environmental harm arising from the activity and, if applicable, recommendations for changes to the WMP.

M5 Monitoring plan of composting process

1 Within three (3) months of the notification of wet commissioning, or by a date otherwise specified in writing by the Director, a set of operational parameters with applicable limits must be submitted to the Director for approval.

2 The parameters must ensure that the final compost product meets the applicable pasteurisation standards of the *Australian Standard AS 4454: 2012 Composts, soil conditioners and mulches*.

3 Unless otherwise specified by the Director, once approved in writing by the Director, the Activity must be carried out in accordance with the approved operational parameters.

4 In the event that the Director, by notice in writing, either approves a minor variation to the approved operational parameters or approves a new operational parameter, the person responsible must implement and act in accordance with the varied or new operational parameter(s), as the case may be.

5 All monitoring data collected in accordance with this condition, along with the protocols involved in conducting monitoring, must be made available to an Authorized officer upon request.

Noise Control

N1 Noise survey requirements

1 Unless otherwise approved in writing by the Director, a noise survey must be completed:

1.1 within three (3) months after notification of wet commissioning is provided; and

1.2 within six (6) months after any change to the activity which is likely to substantially alter the character or increase the volume of noise emitted from The Land; and

1.3 where the Director is of the opinion that a noise survey must be completed within a specified timeframe.

N2 Control of noise emissions

Where human sleep disturbance may be caused by the noise from the activity or transport movements resulting from the activity, such noise emissions must be controlled to the extent necessary to prevent environmental nuisance, this may include restricting operating hours.

N3 Noise Survey Method and Reporting

1 Noise surveys must be undertaken in accordance with a survey method approved in writing by the Director, as may be amended from time to time with written approval of the Director.

2 Without limitation, the survey method must address the following:

2.1 measurements must be carried out at day, evening and night times (where applicable) at each location;

2.2 simultaneous source measurements must be conducted to compare against the noise levels measured at each receiver location;

2.3 source noise levels and characteristics of each item of equipment of concern; and

2.4 measurement locations, and the number thereof, must be specified, with one location established as a control location (noise).

3 Measurements and data recorded during the survey must include:

3.1 operational status of noise producing equipment and throughput of the activity;

3.2 subjective descriptions of the sound at each location;

3.3 details of meteorological conditions relevant to the propagation of noise; and

3.4 the equivalent continuous (Leq) and L1 , L10 , L50 , L90 and L99 A-weighted sound pressure levels measured over a period of 10 minutes or an alternative time interval specified by the Director.

4 A noise survey report must be forwarded to the Director within 30 days from the date on which the noise survey is completed

5 The noise survey report must include the following:

5.1 the results and interpretation of the measurements required by these conditions;

5.2 a map of the area surrounding the activity with the boundary of The Land, measurement locations, and noise sensitive premises clearly marked on the map;

5.3 any other information that will assist with interpreting the results and whether the activity is in compliance with these conditions and EMPCA; and

5.4 recommendations of appropriate mitigation measures to manage any noise problems identified by the noise survey.

N4 Noise emission limits

1 Noise emissions from the activity at any noise sensitive premises in other ownership when expressed as the equivalent continuous A-weighted sound pressure level must not exceed:

1.1 40 dB(A) between 0700 hours and 1800 hours (Day time); and

1.2 35 dB(A) between 1800 hours and 2200 hours (Evening time); and

1.3 30 dB(A) between 2200 hours and 0700 hours (Night time).

2 Where the combined level of noise from the activity and the normal ambient noise exceeds the noise levels stated above, this condition will not be considered to be breached unless the noise emissions from the activity are audible and exceed the background noise levels by at least 5 dB(A).

3 The time interval over which noise levels are averaged must be 10 minutes or an alternative time interval specified in writing by the Director.

4 Measured noise levels must be adjusted for tonality, impulsiveness, modulation and low frequency in accordance with the Tasmanian Noise Measurement Procedures Manual.

5 All methods of measurement must be in accordance with the Tasmanian Noise Measurement Procedures Manual.

Operations

OP1 Operational Procedures Manual Pre-commencement

1 An Operational Procedures Manual ('the Manual') must be developed prior to commencement of the activity. The Manual must provide detailed information relating to the activity and must detail operational procedures as required to ensure compliance with these conditions.

2 The Manual must be prepared in accordance with any reasonable guidelines provided by the Director. If no guidelines are provided, the Manual must:

2.1 be written in an easy to understand format, with checklists, diagrams and photographs as appropriate.

2.2 be available for easy reference by operational staff, including any documents referenced by the Manual

2.3 be clear about who is responsible for carrying out tasks, as well as how, when or how often tasks should be performed.

3 The Manual must be kept up to date, and reviewed at least annually, and must take into account environment related complaints, incidents and changes to the activity.

OP2 Open windrow composting

1 Composting on The Land must not be undertaken outside of the 'in-vessel composting facility' marked on Attachment 1 unless otherwise approved in writing by the Director.

2 The composting pad, leachate pond and associated irrigation network retained on The Land from the previous composting operation may only be used for composting purposes for limited-duration emergency responses, and only with the written approval, and in accordance with any specified requirements, of the Director.

OP3 Weed management

The Land must be kept substantially free of weeds to minimise the risk of weeds being spread through the transport of products from The Land.

OP4 Receivable wastes

1 Unless otherwise approved in writing by the Director, only the following materials may be received, stored or used in composting on The Land:

1.1 Green wastes, including garden organics (Council kerbside and other sources), crop residuals and cannabis;

1.2 Food and beverage processing waste;

1.3 Farm feed shed wastes;

1.4 Stock feed wastes;

1.5 Macerated fish;

1.6 Poultry and fish including mortality;

1.7 Class 1 and Class 2 biosolids, and contaminant Grade A or B sewage sludge;

1.8 Small animal abattoir residuals;

1.9 Food organics (Council kerbside-collected food organics and garden organics known as 'FOGO' and source separated commercial collections);

1.10 Wood fibre, including sawdust;

1.11 Processed plant residues;

1.12 Whey waste;

1.13 Waste brewers yeast;

1.14 Other organic wastes, that are not controlled wastes; and

1.15 Other liquid wastes as follows:

1.15.1 Leachate from the leachate collection tanks; and

1.15.2 Dairy wastewater; and

1.15.3 Grease trap waste.

2 Where there is doubt concerning whether the classification of a waste is a 'controlled waste', then clarification must be sought from the Director.

OP5 Storage of feedstock

1 All receivable wastes or feedstock received on The Land must be stored within the 'in-vessel composting' building, with the exception of non-putrescible waste.

2 All putrescible feedstock must be processed within 24 hours after delivery to The Land.

3 Management of non-putrescible wastes must be included in the Operational Procedures Manual Pre-Commencement required under condition OP1.

OP6 Site hygiene and biosecurity

1 Washdown facilities for vehicles delivering waste must be provided and maintained by the person responsible.

2 Washdown water from transport containers and vehicles must not leave The Land and must report to the leachate collection system.

3 Transport equipment and vehicles delivering waste must be washed in the designated areas to ensure that the washing process does not cause an odour nuisance beyond the boundary of The Land.

4 The premises and equipment, including transport equipment and vehicles, must be maintained and cleaned as necessary to prevent the accumulation of putrescible materials that may give rise to odour.

OP7 Fencing

1 The leachate pond retained for emergency use only must be contained with a stock-proof fence sufficient to restrict entry of native animals.

2 Any fencing must be designed and operated to minimise the risk for swift parrot collisions, in accordance with the principles of the *Guidelines and* recommendations *for parrot-safe building design: Minimising the swift parrot collision threat*, dated 2008 and published by the World Wildlife Fund - Australia.

OP8 Hours of operation and site staff

1 Subject to the following paragraph the composting facility must not be open for the reception of waste outside the hours of 0700 hours to 1700 hours Monday to Saturday.

2 The responsible person may allow reception of waste on The Land outside the normal operating hours specified in the above paragraph where a specific prior arrangement has been made, providing all other conditions are complied with.

3 While The Land is open for reception of waste, The Land must be attended by a person or persons whose duties must include supervising the management of waste deposition and ensuring compliance with these conditions.

4 The hours of operation must be posted on a sign, which must be erected and maintained at the entrance to The Land.

5 Access to The Land must be through a gate that must be secured to prevent unauthorised access when The Land is unattended.

OP9 Fire management

1 Any fire occurring on The Land must immediately be reported to the Director.

2 Fires occurring on The Land must be extinguished as soon as practicable using all practicable means available.

3 The lighting of fires on The Land is not permitted.

OP10 Disposal of compost

Unless otherwise approved in writing by the Director, any finished compost product not meeting the pasteurisation standards of the *Australian Standard AS 4454: 2012 Composts, soil conditioners and mulches* must either be taken to landfill for burial or use as daily cover, or placed back within the composting tunnel for further treatment, within 24 hours of it being determined not to meet the pasteurisation standards of the Australian Standard.

OP11 Transitional arrangements

1 Unless otherwise approved in writing by the Director, 30-days after notification of wet commissioning occurring, no waste is to be deposited on The Land for the purposes of open windrow composting;

2 After the period specified in the above clause, any existing compost windrows may be completed in accordance with normal procedures for open windrow composting; and

3 Upon the last compost windrow being matured, The Land not being used for in-vessel composting must be decommissioned and rehabilitated to the written satisfaction of the Director.

Schedule 3: Information

Legal Obligations

LO1 Storage and handling of dangerous goods, explosives and dangerous substances

1 The storage, handling and transport of dangerous goods, explosives and dangerous substances must comply with the requirements of relevant State Acts and any regulations thereunder, including:

1.1 *Work Health and Safety Act 2012* and subordinate regulations;

1.2 *Explosives Act 2012* and subordinate regulations; and

1.3 *Dangerous Goods (Road and Rail Transport) Act 2010* and subordinate regulations.

LO2 EMPCA

The activity must be conducted in accordance with the requirements of the *Environmental Management and Pollution Control Act 1994* and Regulations thereunder. The conditions of this document must not be construed as an exemption from any of those requirements.

LO3 Controlled waste transport

Transport of controlled wastes to and from The Land must be undertaken only by persons authorised to do so under EMPCA or subordinate legislation.

Other Information

OI1 Waste management hierarchy

1 Wastes should be managed in accordance with the following hierarchy of waste management:

1.1 waste should be minimised, that is, the generation of waste must be reduced to the maximum extent that is reasonable and practicable, having regard to best practice environmental management;

1.2 waste should be re-used or recycled to the maximum extent that is practicable; and

1.3 waste that cannot be re-used or recycled must be disposed of at a waste depot site or treatment facility that has been approved in writing by the relevant planning authority or the Director to receive such waste, or otherwise in a manner approved in writing by the Director.

OI2 Notification of incidents under section 32 of EMPCA

Where a person is required by section 32 of EMPCA to notify the Director of the release of a pollutant, the Director can be notified by telephoning **1800 005 171** (a 24-hour emergency telephone number).

Appendix C

EPN 7852/1

ENVIRONMENT PROTECTION NOTICE No. 7852/1

Issued under the *Environmental Management and Pollution Control Act 1994*

Issued to: **DULVERTON REGIONAL WASTE MANAGEMENT AUTHORITY**
ABN 11 784 477 180
LEVEL 1, 35 STEWART ST
DEVONPORT TAS 7300

Environmentally Relevant Activity: **The operation of a composting facility (ACTIVITY TYPE: Resource Recovery)**
DULVERTON COMPOSTING OPERATION, DAWSONS SIDING RD
DULVERTON TAS 7310

GROUNDS

I, Wes Ford, Director, Environment Protection Authority, (the Director), being satisfied in accordance with section 44(1)(d) of the *Environmental Management and Pollution Control Act 1994* (EMPCA) that in relation to the above-mentioned environmentally relevant activity that it is desirable to vary the conditions of a permit (see table below) hereby issue this environment protection notice to the above-mentioned person as the person responsible for the activity.

Permit No.	Date Granted	Granted By
DA73/02	18 November 2003	Latrobe Council

PARTICULARS

The particulars of the grounds upon which this notice is issued are:

1 A regulatory limit which sets the maximum scale or throughput of the activity is needed because any increase in scale or throughput may result in additional environmental impacts or emissions that were not considered at the time of granting of the permit.

2 Permit conditions need to be varied to reflect contemporary management practices, specifically that an Environmental Management System is in place.

3 It is desirable to add a condition requiring odour management. Odour management consideration is part of best practice environmental management.

4 The permit conditions need to be varied to ensure that there are adequate safeguards against environmental harm or nuisance being caused by the activity.

5 A condition requiring notification of a change of ownership of The Land is needed because this Notice may affect title to land and the new owner's interests may be affected by pollutants emitted or disturbed by the activity.

6 The permit conditions need to be varied to reflect current or updated terminology and/or to clarify the meaning of the conditions.

7 Permit conditions need to be varied to more specifically identify when approvals to effect change are required.

8 The permit does not include a condition requiring the person responsible to take action to minimise environmental harm if an incident occurs.

9 It is necessary to add a condition requiring a public complaints register to be maintained so that the Director can appraise the frequency and characteristics of complaints which may indicate nuisance should any complaints be received.

10 It is necessary to add a condition requiring the submission of a publicly available Annual Environmental Review to inform the Director and the public of the environmental performance of the activity.

11 It is desirable to add conditions ensuring that decommissioning and rehabilitation is undertaken, and is done in a timely, planned and approved manner to minimise environmental harm.

12 A condition is included to require fire-fighting wastewater that is generated from on-site firefighting to be managed to prevent environmental harm.

13 A condition is included to require the maintenance of existing perimeter drains to ensure that their performance is not impeded.

14 The permit does not contain conditions relating to adequate management of stormwater on The Land. It is necessary to add a condition requiring adequate management of stormwater to prevent environmental harm and/or nuisance being caused by stormwater leaving The Land.

15 Permit conditions need to be varied to identify overall management objectives for the management of leachate.

16 Permit conditions need to be varied to combine leachate pond management requirements into a single cohesive condition.

17 A condition is included to ensure adequate monitoring of the soils and groundwater within the irrigation area and to keep the Director informed of results.

18 Permit conditions need to be varied to update conditions and requirements relating to fire management at the activity.

19 Permit conditions need to be varied to ensure that weeds are adequately controlled on the land and to replace a completed requirement.

20 The permit does not contain conditions in relation to dealing with environmentally hazardous substances. Environmentally hazardous substances are likely to be stored and handled on The Land and current best practice environmental management necessitates conditions to be varied for the storage and handling of environmentally hazardous substances.

21 The permit does not have a condition requiring the provision of spill kits. It is desirable to add a condition requiring provision, in suitable locations, of spill kits appropriate for the environmental hazardous substances held on The Land for use in any incident to minimise the emissions of a pollutant into the environment.

22 Permit conditions need to be varied to update requirements for the treatment of samples obtained for monitoring to achieve best practice environmental management.

23 Monitoring and reporting requirements set out in the permit conditions need to be varied to reflect current best practice environmental management and to require accurate measurement of emissions and their impact upon the receiving environment and to consistently inform the Director of the results of monitoring

24 Permit conditions need to be varied to include requirements for the signage of monitoring points.

25 Permit conditions need to be varied to update requirements relating to the monitoring of surface waters, leachate, irrigation area and groundwater to reflect current operating conditions and best practice environmental management and to keep the Director informed of results.

26 Permit conditions need to be varied to update requirements for the monitoring of the composting process, to verify that optimal conditions for composting are being maintained.

27 Permit conditions relating to noise emissions need to be updated to comply with current terminology, and best practice environmental management.

28 It is desirable to add conditions setting noise emission limits, in accordance with the Environment Protection Policy (Noise) 2009Permit conditions relating to hours of operation need to be updated to comply with current terminology and operating conditions.

29 Permit conditions relating to receivable wastes need to updated to include all materials currently considered acceptable for composting at the activity.

30 The permit does not include any fencing requirement. Fencing of the activity is required to discourage unauthorised persons from entering the site and coming into contact with sewage or any hazardous substance.

31 Permit conditions relating to the management of windrows need to varied to reflect current understanding of the environmental risks posed by composting and appropriate measures to reduce these risks.

32 Permit conditions relating to staffing requirements need to be varied to reflect a better understanding of the environmental risk associated with the activity. Trained staff need to be on site at all times during operational hours.

33 Permit conditions relating to site hygiene and biosecurity need to be varied to reflect changes to materials accepted on site and the understanding of the environmental risks posed by the activity.

34 It is necessary to remove condition C2 of permit No. DA73/02 because it details requirements that have been fulfilled and are no longer required.

DEFINITIONS

Unless the contrary appears, words and expressions used in this Notice have the meaning given to them in Schedule 1 of this Notice and in the EMPCA. If there is any inconsistency between a definition in the EMPCA and a definition in this Notice, the EMPCA prevails to the extent of the inconsistency.

REQUIREMENTS

The person responsible for the activity must comply with the varied permit conditions as set out in Schedule 2 of this Notice.

INFORMATION

Attention is drawn to **Schedule 3**, which contains important additional information.

PENALTIES

If a person bound by an environment protection notice contravenes a requirement of the notice, that person is guilty of an offence and is liable on summary conviction to a penalty not exceeding 1000 penalty units in the case of a body corporate or 500 penalty units in any other case (at the time of issuance of this Notice one penalty unit is equal to $154.00).

NOTICE TAKES EFFECT

This notice takes effect on the date on which it is served upon you.

APPEAL RIGHTS

You may appeal to the Appeal Tribunal against this notice, or against any requirement contained in the notice, within 14 days from the date on which the notice is served, by writing to:

The Chairperson
Resource Management and Planning Appeal Tribunal
GPO Box 2036
Hobart TAS 7001

Signed: _____

DIRECTOR, ENVIRONMENT PROTECTION AUTHORITY

Table Of Contents

Attachments

Schedule 1: Definitions

Activity means any environmentally relevant activity (as defined in Section 3 of EMPCA) to which this document relates, and includes more than one such activity.

Authorized Officer means an authorized officer under section 20 of EMPCA.

Classification And Management Of Contaminated Soil For Disposal means the document *Information Bulletin No.105 Classification and Management of Contaminated Soil for Disposal* published by the Department of Primary Industries, Parks, Water and Environment in November 2012, and includes any subsequent versions of this document.

Compost means material produced by the controlled microbiological transformation of organic materials under aerobic and thermophilic conditions.

Compost Irrigation Management Plan means the document entitled Compost Irrigation Management Plan, prepared by SEMF and dated 2 February 2011.

Controlled Waste has the meaning described in Section 3(1) of EMPCA.

Director means the Director, Environment Protection Authority holding office under Section 18 of EMPCA and includes a person authorised in writing by the Director to exercise a power or function on the Director's behalf.

DRP means Decommissioning and Rehabilitation Plan.

EMPCA means the *Environmental Management and Pollution Control Act 1994*.

Environmental Harm and **Material Environmental Harm** and **Serious Environmental Harm** each have the meanings ascribed to them in Section 5 of EMPCA.

Environmental Nuisance and **Pollutant** each have the meanings ascribed to them in Section 3 of EMPCA.

Environmentally Hazardous Material means any substance or mixture of substances of a nature or held in quantities which present a reasonably foreseeable risk of causing serious or material environmental harm if released to the environment and includes fuels, oils, waste and chemicals but excludes sewage.

Irrigation Area means the area of pine plantation labelled Irrigation Area in Attachment 1.

Leachate means any liquid that is either released by or has percolated through waste, compost or raw materials.

Leachate Storage Pond means the pond used for the storage of leachate and labelled as Leachate Pond in Attachment 2 of this Notice.

Liquid Waste means any waste that is in liquid form or is substantially comprised of free liquids or is not spadeable (able to be lifted and moved in heaps with a spade).

Noise Sensitive Premises means residences and residential zones (whether occupied or not), schools, hospitals, caravan parks and similar land uses involving the presence of individual people for extended periods, except in the course of their employment or for recreation.

Person Responsible is any person who is or was responsible for the environmentally relevant activity to which this document relates and includes the officers, employees, contractors, joint venture partners and agents of that person, and includes a body corporate.

Pest Animal means any animal (including insects) whose activity has the potential to cause environmental harm or nuisance.

Putrescible means materials that are capable of rapid biological decay or rotting.

Reporting Period means the 12 months ending on 18 November each year.

Stormwater means water traversing the surface of the land as a result of rainfall.

Tasmanian Noise Measurement Procedures Manual means the Noise Measurement Procedures Manual referred to in regulation 4 of the *Environmental Management and Pollution Control (Miscellaneous Noise) Regulations 2014*.

The Land means the land on which the activity to which this document relates may be carried out, and includes: buildings and other structures permanently fixed to the land, any part of the land covered with water, and any water covering the land. The Land falls within the area defined by:

1. Certificates of Title 131878/1 and 153999/1; and
2. Further delineated at Attachment 1 of this Notice.
3. Grid reference centroid: 448825E 5429024N

Vectors means animals capable of transmitting an infection from one host to another.

Wastewater means spent or used water (whether from industrial or domestic sources) containing a pollutant and includes stormwater which becomes mixed with wastewater.

Water Sensitive Urban Design. means the management of stormwater in the landscape rather than drain it all to waterways. This is done with the aim of protecting and improving waterway health by mimicking the natural water cycle as closely as possible

Weed means a declared weed as defined in the *Weed Management Act 1999*.

Schedule 2: Conditions

Maximum Quantities

Q1 Regulatory limits

1 The activity must not exceed the following limits (annual fees are derived from these figures):

1.1 25,000 tonnes per year of production of compost or mushroom substrate.

General

G1 Access to and awareness of conditions and associated documents

A copy of these conditions and any associated documents referred to in these conditions must be held in a location that is known to and accessible to the person responsible for the activity. The person responsible for the activity must ensure that all persons who are responsible for undertaking work on The Land, including contractors and sub-contractors, are familiar with these conditions to the extent relevant to their work.

G2 No changes without approval

1 The following changes, if they may cause or increase the emission of a pollutant which may cause material or serious environmental harm or environmental nuisance, must only take place in relation to the activity if such changes have been approved in writing by the EPA Board following its assessment of an application for a permit under the *Land Use Planning and Approvals Act 1993*, or approved in writing by the Director:

1.1 a change to a process used in the course of carrying out the activity; or

1.2 the construction, installation, alteration or removal of any structure or equipment used in the course of carrying out the activity; or

1.3 a change in the quantity or characteristics of materials used in the course of carrying out the activity.

G3 Incident response

If an incident causing or threatening environmental nuisance, serious environmental harm or material environmental harm from pollution occurs in the course of the activity, then the person responsible for the activity must immediately take all reasonable and practicable action to minimise any adverse environmental effects from the incident.

G4 Change of ownership

If the owner of The Land upon which the activity is carried out changes or is to change, then, as soon as reasonably practicable but no later than 30 days after becoming aware of the change or intended change in the ownership of The Land, the person responsible must notify the Director in writing of the change or intended change of ownership.

G5 Complaints Register

1 A public complaints register must be maintained and made available for inspection by an Authorized Officer upon request. The public complaints register must, as a minimum, record the following detail in relation to each complaint received in which it is alleged that environmental harm (including an environmental nuisance) has been caused by the activity:

1.1 the time at which the complaint was received;

1.2 contact details for the complainant (where provided);

1.3 the subject-matter of the complaint;

1.4 any investigations undertaken with regard to the complaint; and

1.5 the manner in which the complaint was managed, including any mitigation measures implemented.

2 Complaint records must be maintained for a period of at least 3 years.

G6 Annual Environmental Review

1 Unless otherwise specified in writing by the Director, a publicly available Annual Environmental Review for the activity must be submitted to the Director each year within three months of the end of the reporting period. Without limitation, each Annual Environmental Review must include the following information:

1.1 a statement by the General Manager, Chief Executive Officer or equivalent for the activity acknowledging the contents of the Annual Environmental Review;

1.2 subject to the *Personal Information Protection Act 2004*, a list of all complaints received from the public during the reporting period concerning actual or potential environmental harm or environmental nuisance caused by the activity and a description of any actions taken as a result of those complaints;

1.3 details of environment-related procedural or process changes that have been implemented during the reporting period;

1.4 a summary of the amounts (tonnes or litres) of both solid and liquid wastes produced and treatment methods implemented during the reporting period. Initiatives or programs planned to avoid, minimise, re-use, or recycle such wastes over the next reporting period should be detailed;

1.5 details of all non-trivial environmental incidents and/or incidents of non compliance with permit or environment protection notice conditions that occurred during the reporting period, and any mitigative or preventative actions that have resulted from such incidents;

1.6 a summary of the monitoring data and record keeping required by these conditions. This information should be presented in graphical form where possible, including comparison with the results of at least the preceding reporting period. Special causes and system changes that have impacted on the parameters monitored must be noted. Explanation of significant deviations between actual results and any predictions made in previous reports must be provided;

1.7 identification of breaches of limits specified in these conditions and significant variations from predicted results contained in any relevant DPEMP or EMP, an explanation of why each identified breach of specified limits or variation from predictions occurred and details of the actions taken in response to each identified breach of limits or variance from predictions;

1.8 a list of any issues, not discussed elsewhere in the report, that must be addressed to improve compliance with these conditions, and the actions that are proposed to address any such issues;

1.9 a summary of fulfilment of environmental commitments made for the reporting period. This summary must include indication of results of the actions implemented and explanation of any failures to achieve such commitments; and

1.10 a summary of any community consultation and communication undertaken during the reporting period.

G7 Environmental Management Plan

1 Within 15 months of the date on which these conditions take effect, or by a date otherwise specified in writing by the Director, an Environmental Management Plan ('EMP') must be submitted to the Director for approval.

2 The EMP must detail prescriptions, consistent with these conditions, for the prevention or mitigation of environmental harm and environmental nuisance arising from the activity.

3 The EMP must include specific Plans, as detailed in Attachment 3.

4 In preparing the EMP the person responsible must take into account environment related complaints, incidents and changes to the activity over the preceding 3 years.

5 The EMP must include plans clearly showing the actual location of all infrastructure associated with the activity including buildings, machinery, roads, stockpiles and drainage controls. These plans must also depict the current and proposed future extent of disturbance associated with the activity.

6 The approved EMP, as amended from time to time with the written agreement of the Director, must be implemented by the person responsible from the date of the Director's approval.

Atmospheric

A1 Covering of vehicles
Vehicles carrying loads containing material which may blow or spill must be equipped with effective control measures to prevent the escape of the materials from the vehicles when they leave The Land. Effective control measures may include tarpaulins and load dampening.

A2 Control of dust emissions
Dust emissions from The Land must be controlled to the extent necessary to prevent environmental nuisance beyond the boundary of The Land.

A3 Odour management
The person responsible must institute such odour management measures as are necessary to prevent odours causing environmental nuisance beyond the boundary of The Land.

Decommissioning And Rehabilitation

DC1 Notification of cessation
Within 30 days of becoming aware of any event or decision which is likely to give rise to the permanent cessation of the activity, the person responsible for the activity must notify the Director in writing of that event or decision. The notice must specify the date upon which the activity is expected to cease or has ceased.

DC2 DRP requirements
Unless otherwise approved in writing by the Director, a Decommissioning and Rehabilitation Plan (DRP) for the activity must be submitted for approval to the Director within 30 days of the Director being notified of the planned cessation of the activity or by a date specified in writing by the Director. The DRP must be prepared in accordance with any guidelines provided by the Director.

DC3 Rehabilitation following cessation

1 Following permanent cessation of the activity, and unless otherwise approved in writing by the Director, The Land must be rehabilitated including:

1.1 stabilisation of any land surfaces that may be subject to erosion;

1.2 removal or mitigation of all environmental hazards or land contamination, that might pose an on-going risk of causing environmental harm; and

1.3 decommissioning of any equipment that has not been removed.

2 Where a Decommissioning and Rehabilitation Plan (DRP) has been approved by the Director, decommissioning and rehabilitation must be carried out in accordance with that plan, as may be amended from time to time with written approval of the Director.

Discharge

DS1 Fire fighting wastewater

In the event of a fire, potentially contaminated wastewater arising from fire fighting must be treated on The Land to the satisfaction of the Director or removed from the site by a person holding all necessary approvals for such transport.

DS2 Maintenance of Perimeter Drains

1 Perimeter drains as identified in Attachment 2 of this Notice must be maintained to prevent stormwater from entering the area used or disturbed in carrying out the activity. All reasonable measures must be implemented to ensure that sediment transported along these drains remains on The Land. Such measures may include provision of strategically located sediment fences, appropriately sized and maintained sediment settling ponds, vegetated swales, detention basins and other measures designed and operated in accordance with the principles of Water Sensitive Urban Design.

2 Drains must have sufficient capacity to contain run-off that could reasonably be expected to arise during a 1 in 10 year 24 hour storm event. Maintenance activities must be undertaken regularly to ensure that this capacity does not diminish.

DS3 Stormwater

1 Polluted stormwater that will be discharged from The Land must be collected and treated prior to discharge to the extent necessary to prevent serious or material environmental harm, or environmental nuisance.

2 Notwithstanding the above, all stormwater that is discharged from The Land must not carry pollutants such as sediment, oil and grease in quantities or concentrations that are likely to degrade the visual quality of any receiving waters outside the Land.

3 All reasonable measures must be implemented to ensure that solids entrained in stormwater are retained on The Land. Such measures may include appropriately sized and maintained sediment settling ponds or detention basins.

4 Stormwater discharged in accordance with this condition must not be directed to sewer without the approval of the operator of the sewerage system.

Effluent Disposal

E1 Leachate Management

1 The leachate collection system must be managed to prevent leachate generated by the composting operation from polluting groundwater or surface waters.

2 Leachate on The Land must be managed such that:

2.1 it does not cause an odour nuisance beyond the boundary of The Land; and

2.2 human contact with leachate is minimised.

E2 Leachate Storage Pond Management

1 Uncontaminated stormwater must be prevented as far as practicable from entering the leachate stream.

2 All leachate and contaminated stormwater must be directed to the leachate storage pond.

3 The available capacity (freeboard) of the leachate storage pond must be maintained to:

3.1 eliminate the transfer of leachate to the irrigation area during periods of soil water saturation or near saturation;and

3.2 retain sufficient capacity to hold all leachate arising from a 1 in 10 year 24 hour storm event.

4 If the storage capacity of the leachate storage pond reduces to a point where it is likely to breach the above requirements, the person responsible must submit to the Director for approval a proposal to ensure that the required storage capacity will be achieved and maintained within a reasonable timeframe while addressing potential environmental impacts. The person responsible must implement any such proposal approved by the Director.

5 Water from the leachate storage pond must not be released into surface water bodies or streams.

E3 Sludge Management

1 The leachate storage pond must be managed by periodic desludging to maintain the design capacity of the pond to:

1.1 Allow settling of solid matter entrained in the leachate; and

1.2 Prevent overflow and loss of leachate to the environment.

2 Sludge removed from the leachate storage pond must be sampled and tested to determine the level of contamination and disposed of in accordance with the requirements of *Classification and Management of Contaminated Soils for Disposal.*

E4 Irrigation Area Management

1 During periods of discharge of leachate to the irrigation area, weekly visual assessments must be conducted on the irrigation area and any noticeable impacts such as damage to soil and plants or evidence of pooling or run-off from the site must be recorded.

2 Parameters listed in Column 1 of Table 3 must not exceed the values given in Column 3 in leachate water to be discharged to the irrigation area.

3 The annual loading of contaminants listed in Column 1 of Table 3 applied to the irrigation area must not exceed the values given in Column 4.

4 If the accumulated metal content in the upper 15 cm of soil for any metal listed in column 1 of Table 3 exceeds the Cumulative Contaminant Loading specified in Column 5 of Table 3 then the area must be rested and remediated in a manner approved by the Director.

5 The hydraulic load applied to the irrigation area must be recorded. Unless otherwise approved in writing by the Director, the annual application rate for any given area must not exceed 3 ML/ha, reducing to 2ML/ha in a 1:10 wet year and increasing to 4 ML/ha in a 1:10 dry year.

Fire Management

FM1 Fire management

1 Fire control measures on The Land must be to the satisfaction of the Tasmania Fire Service (TFS). Correspondence from the TFS indicating the suitability of fire control measures must be submitted to the Director within 6 months of the date on which these conditions take effect.

2 Fires occurring on The Land must be extinguished as soon as possible using all practical means available.

3 The lighting of fires on The Land is not permitted.

4 The person responsible must make all reasonable efforts to prevent unauthorised ignition of green waste stockpiles.

Flora And Fauna

FF1 Weed Control

Weeds must be controlled on site to the extent necessary to prevent the establishment of seeding populations and to prevent their spread off site.

Hazardous Substances

H1 Storage and handling of hazardous materials

1 Unless otherwise approved in writing by the Director, environmentally hazardous materials held on The Land must be:

1.1 located within impervious bunded areas, spill trays or other containment systems; and

1.2 managed to prevent unauthorised discharge, emission or deposition of pollutants:

1.2.1 to soils within the boundary of The Land in a manner that is likely to cause serious environmental harm;

1.2.2 to groundwater;

1.2.3 to waterways; or

1.2.4 beyond the boundary of The Land.

H2 Spill kits

Spill kits appropriate for the types and volumes of materials handled on The Land must be kept in appropriate locations to assist with the containment of spilt environmentally hazardous materials.

Monitoring

M1 Dealing with samples obtained for monitoring

1 Any sample or measurement required to be obtained under these conditions must be taken and processed in accordance with the following:

1.1 Australian Standards, NATA approved methods, the American Public Health Association Standard Methods for the Analysis of Water and Waste Water or other standard(s) approved in writing by the Director;

1.2 measurement equipment must be maintained and operated in accordance with the manufacturer's specifications;

1.3 samples must be tested in a laboratory accredited by the National Association of Testing Authorities (NATA), or a laboratory approved in writing by the Director, for the specified test;

1.4 results of measurements and analysis of samples and details of methods employed in taking measurements and samples must be retained for at least three years after the date of collection; and

1.5 noise measurements must be undertaken in accordance with the Tasmanian Noise Measurement Procedures Manual.

M2 Monitoring, record keeping and reporting

Unless otherwise approved in writing by the Director, the results of laboratory analysis of samples collected in the course of monitoring required under these conditions must be submitted to the Director in the Annual Environmental Review following completion of those analyses by the laboratory.

M3 Signage of monitoring points

With the exception of open water sampling, all monitoring points must be clearly marked to indicate the location and name of the monitoring point.

M4 Stormwater monitoring

1 Unless otherwise approved in writing by the Director, representative samples of stormwater must be collected at the point of discharge from the Land, identified as "Surface Water Discharge Point" in Attachment 2, at 3 monthly intervals and must be analysed or measured for the parameters listed in Column 1 of Table 1 at the frequency specified in Column 2 of Table 1.

2 If there is no flow at the Surface Water Discharge Point at the time of sampling then the sample must be collected at the first occurrence of flow thereafter.

3 Results of the above monitoring must be included in the subsequent Annual Environment Review.

4 If stormwater has become contaminated with leachate, or if required in writing by the Director, additional sampling and testing of the parameters listed in Column 1 of Table 1 must be undertaken at the locations and frequency specified by the Director and the results must be submitted to the Director within 30 days of receipt by the person responsible.

5 Stormwater and groundwater monitoring programs must be continued for a period of five years from the issue of this Notice, after which the person responsible may apply to the Director to alter the monitoring program.

6 **Table 1 Stormwater Monitoring**

Column 1	Column 2
MONITORING PARAMETER AND REPORTING UNITS	MONITORING FREQUENCY
pH	At least once per three monthly period, when water is flowing.
BOD (mgO_2/L)	At least once per three monthly period, when water is flowing.
TSS (mg/L)	At least once per three monthly period, when water is flowing.
Conductivity (Ds/M)	At least once per three monthly period, when water is flowing.
Total Nitrogen (mg/L)	At least once per three monthly period, when water is flowing.
Ammonia (mg/L)	At least once per three monthly period, when water is flowing.
NOx (mg/L)	At least once per three monthly period, when water is flowing.
Total Phosphorus (mg/L)	At least once per three monthly period, when water is flowing.
Dissolved Free Phosphorus (mg/L)	At least once per three monthly period, when water is flowing.

M5 Leachate monitoring

1 Unless otherwise approved in writing by the Director, representative samples of leachate must be collected and must be analysed or measured for the parameters listed in Column 1 of Table 2 at the the following times:

1.1 When a change in raw materials or processes may result in changes to the leachate;

1.2 Prior to the commencement of seasonal irrigation;

1.3 When required in writing by the Director.

2 Unless otherwise required in writing by the Director, all metals are to be analysed for total concentration.

3 Results of analysis and measurements must be submitted to the Director within 30 days of receipt by the person responsible.

4 Table 2 Leachate Monitoring

Column 1
MONITORING PARAMETERS
pH
Conductivity (uS/cm)
Alkalinity (as $CaCO_3$) (mg/L)
Total Nitrogen (mg/L)
Ammonia (ug-N/L)
Nitrate (ug-N/L)
Nitrite (ug-N/L)
Total phosphorus (mg/L)
BOD (mgO_2/L)
Dissolved Oxygen (mg/L)
Total CN (as CN) (mg/L)
Total Iron (Fe) (mg/L)
Aluminium (Al) (mg/L)
Copper (Cu) (mg/L)
Zinc (Zn) (mg/L)
Chromium (Cr) (mg/L)
Manganese (Mn) (mg/L)
Nickel (Ni) (mg/L)
Lead (Pb) (mg/L)
Cadmium (Cd) (mg/L)
Chloride (mg/L)
Sulphate (mg/L)
Sodium (Na) (mg/L)
Potassium (K) (mg/L)
Magnesium (Mg) (mg/L)
Arsenic (As) (mg/L)
Mercury (Hg) (mg/L)
Selenium (Se) (mg/L)
TPH (mg/L)

M6 Irrigation Area Monitoring

1 Unless otherwise approved in writing by the Director, soil to be irrigated must be sampled and analysed for the parameters listed in Column 1 of Table 3 at the rate of 2 composite soil samples per irrigated hectare at the frequency specified in column 2.

2 Water with electrical conductivity greater than 2,300 uS/cm must not be discharged to the irrigation area.

3 Water with a BOD value greater than 75 mg/L must not be discharged into the irrigation area.

4 **Table 3 Irrigation Area Monitoring and Limits**

Column 1	Column 2	Column 3	Column 4	Column 5
Monitoring Parameter	Sampling Frequency	Maximum Concentration in Irrigation Water (mg/L)*	Annual Loading in top 15 cm of soil (g/ha)**	Soil Cumulative Contaminant Loading (kg/ha)*
Arsenic (As)	Annually	2.0	6,000	20
Cadmium (Cd)	Annually	0.05	150	2
Copper (Cu)	Annually	5.0	15,000	140
Lead (Pb)	Annually	20.0	60,000	260
Mercury (Hg)	Annually	0.002	6	2
Nickel (Ni)	Annually	2.0	6,000	85
Selenium (Se)	Annually	0.05	150	10
Zinc (Zn)	Annually	5.0	15,000	300
Magnesium (mg)	Annually			
Potassium (K)	Annually			
Chlorine (Cl)	Annually			
Calcium (Ca)	Annually			
Electrical Conductivity (uS/cm)	Annually			
BOD (mgO2/L)	Annually	75		

*Values Derived from Table 4-2 of *Environmental Guidelines for the Use of Recycled water In Tasmania (DPIWE December 2002).*

**Assuming an average annual transfer of 3ML/ha of leachate.

M7 Groundwater monitoring

1 Unless otherwise approved in writing by the Director, groundwater bores identified in Attachment 2 of this Notice must be sampled and tested for the parameters listed in Column 1 of Table 4 "Groundwater Monitoring" monitored in accordance with Column 2 of Table 4.

2 To prevent potential damage or loss of groundwater bores during composting operations or surface drainage improvements; an area must be cleared around each monitoring site with markers installed to ensure they remain clearly visible.

3 **Table 4. Groundwater Monitoring**

Column 1	Column 2
MONITORING PARAMETERS (reporting units)	**SAMPLING FREQUENCY**
Ground water depth (m)	Within 6 weeks of issue of this Notice then at 6 month intervals
Co ordinates, GDA 94 Zone 55 - Easting, Northing, AHD	Within 6 weeks of issue of this Notice
pH	Within 6 weeks of issue of this Notice then at 6 month intervals
Conductivity (uS/cm)	Within 6 weeks of issue of this Notice then at 6 month intervals
Total Dissolved Salts (TDS) (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Total Nitrogen(ug-N/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Ammonia (mg-N/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Nitrate (mg-N/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Nitrite (mg-N/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Total phosphorus (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Orthophosphate (mg-P/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Dissolved Organic C (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
BOD (mgO_2/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Total and dissolved (Fe) (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Copper (Cu) (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Zinc (Zn) (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Chromium (Cr) (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Manganese (Mn) (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Nickel (Ni) (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Lead (Pb) (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Cadmium (Cd) (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Chloride (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Sulphate (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Sodium (Na) (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Potassium (K) (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Magnesium (Mg) (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Arsenic (As) (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Mercury (Hg) (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
Selenium (Se) (mg/L)	Within 6 weeks of issue of this Notice then at 6 month intervals
TPH (mg/kg)	Within 6 weeks of issue of this Notice then at 6 month intervals

M8 Monitoring of Compost

1 If required in writing by the Director the parameters listed in Column 1 of Table 5 must be monitored in the compost heaps and logged as specified by the Director.

2 All monitoring data collected in accordance with this condition, along with the protocols involved in conducting monitoring, must be made available to an authorised officer upon request.

2.1 Table 5. Monitoring requirements and operational limits for composting.

Column 1	Column 2	Column 3
Monitoring Parameter	Requirement	Sampling Frequency
Moisture Content (%)	Between 45-65 %	As required in writing by the Director, but not in excess of the requirements of AS4454-2012 Composts, soil conditioners and mulches.
Oxygen Content (%)	>5%.	As required in writing by the Director, but not in excess of the requirements of AS4454-2012 Composts, soil conditioners and mulches.
Carbon:Nitrogen ratio	>15:1	As required in writing by the Director, but not in excess of the requirements of AS4454-2012 Composts, soil conditioners and mulches.
Pile Temperature (° C)	Temperatures > 55 degrees C for three days prior to turning.	As required in writing by the Director, but not in excess of the requirements of AS4454-2012 Composts, soil conditioners and mulches.

Noise Control

N1 Noise emission limits

1 Noise emissions from the activity when measured at any noise sensitive premises in other ownership and expressed as the equivalent continuous A-weighted sound pressure level must not exceed:

1.1 50 dB(A) between 0700 hours and 1800 hours (Day time); and

1.2 45 dB(A) between 1800 hours and 2200 hours (Evening time); and

1.3 40 dB(A) between 2200 hours and 0700 hours (Night time).

2 Where the combined level of noise from the activity and the normal ambient noise exceeds the noise levels stated above, this condition is not considered to have been breached unless the noise emissions from the activity are audible and exceed the ambient noise levels by at least 5 dB(A).

3 The time interval over which noise levels are averaged must be 10 minutes or an alternative time interval specified in writing by the Director.

4 Measured noise levels must be adjusted for tonality, impulsiveness, modulation and low frequency in accordance with the Tasmanian Noise Measurement Procedures Manual.

5 All methods of measurement must be in accordance with the Tasmanian Noise Measurement Procedures Manual.

Operations

OP1 Receivable wastes

1 Unless otherwise approved in writing by the Director, only the following materials may be received, stored or used in composting on the land:

1.1 Wood fibre, including sawdust;

1.2 Processed plant residues;

1.3 Green waste;

1.4 Whey waste;

1.5 Waste Brewers yeast;

1.6 Animal waste; (including macerated fish wastes)

1.7 Vegetable waste;

1.8 Biosolids classified as Class 1 and Class 2 as defined in the *Tasmanian Biosolids Reuse Guidelines August* 1999, as may be updated from time to time;

1.9 Other organic wastes, that are not controlled wastes; and

1.10 Liquid wastes as follows:

1.10.1 Fonterra wastewater;

1.10.2 leachate from the leachate storage pond on the Land; and

1.10.3 liquid waste of a type approved in writing by the Director.

2 Where there is doubt concerning whether the classification of a waste is a 'controlled waste', then clarification must be sought from the Director.

OP2 Composting

Unless otherwise approved in writing by the Director, composting at the site must be confined to the area designated as the "Composting Area" as identified in Attachment 1.

OP3 Management of Windrows

1 During the thermophilic stage of the composting operation, parameters listed in Column 1 of Table 5 must comply with the requirement listed in Column 2 within the windrows.

2 All putrescible material delivered to the site must be incorporated into the windrows on the day of receipt.

3 Any putrescible material that cannot be incorporated as above must be disposed of to the Dulverton landfill on the day of receipt.

4 Partially composted putrescible materials must not be left lying between windrows, and must be returned into the windrows prior to the end of each working day.

5 Inter-windrow spaces must be maintained in a manner to prevent the feeding or breeding of pest animals and the generation of odour.

6 Machinery capable of turning and mixing the compost must be kept on site at all times. A person capable of operating the machinery must be available for an adequate period to turn and mix compost on a daily basis.

OP4 Management of Compost

1 Compost must be produced under the following conditions:

1.1 Turning of the outer material to the inside of the windrow so that the whole mass is subjected to a minimum of three turns per composting cycle;

1.2 Temperatures maintained to at least 55 degrees C for three consecutive days prior to each turn;

1.3 Windrows must remain aerobic throughout the composting process;

1.4 Composting must be undertaken in such a manner as to restrict the generation of runoff, leachate and odours; and

1.5 Composting must be undertaken in such a manner as to restrict access of vectors and pest animals to the windrows and raw materials.

OP5 Site Hygiene and Biosecurity

1 Washdown facilities for vehicles delivering fish waste must be provided and maintained by the person responsible.

2 Washdown water from fish transport containers and vehicles must not leave the Land and must report to the leachate pond.

3 The premises and equipment, including transport equipment and vehicles, must be maintained and cleaned as necessary to prevent the accumulation of putrescible materials that may give rise to odour, or provide breeding sites for flies.

OP6 Fencing

1 The composting area as shown at Attachment 1 must be contained with in a stock-proof fence sufficient to restrict the entry of native animals.

2 The leachate management infrastructure must be contained within a secure fence sufficient to restrict unauthorised entry.

OP7 Staffing

1 A site supervisor must be in attendance at all times when the site is open and must have the responsibility for the control of the daily operations of composting and monitoring.

2 The site supervisor must have the responsibility and authority to receive, or to reject each load of waste received at the site.

3 The site supervisor must make all reasonable efforts to ensure that there is no public access to the site.

Schedule 3: Information

Legal Obligations

LO1 EMPCA

The activity must be conducted in accordance with the requirements of the *Environmental Management and Pollution Control Act 1994* and Regulations thereunder. The conditions of this document must not be construed as an exemption from any of those requirements.

LO2 Storage and handling of Dangerous Goods, Explosives and dangerous substances

1 The storage, handling and transport of dangerous goods, explosives and dangerous substances must comply with the requirements of relevant State Acts and any regulations thereunder, including:

1.1 *Work Health and Safety Act 2012* and subordinate regulations;

1.2 *Explosives Act 2012* and subordinate regulations; and

1.3 *Dangerous Goods (Road and Rail Transport) Act 2010* and subordinate regulations.

LO3 Change of responsibility

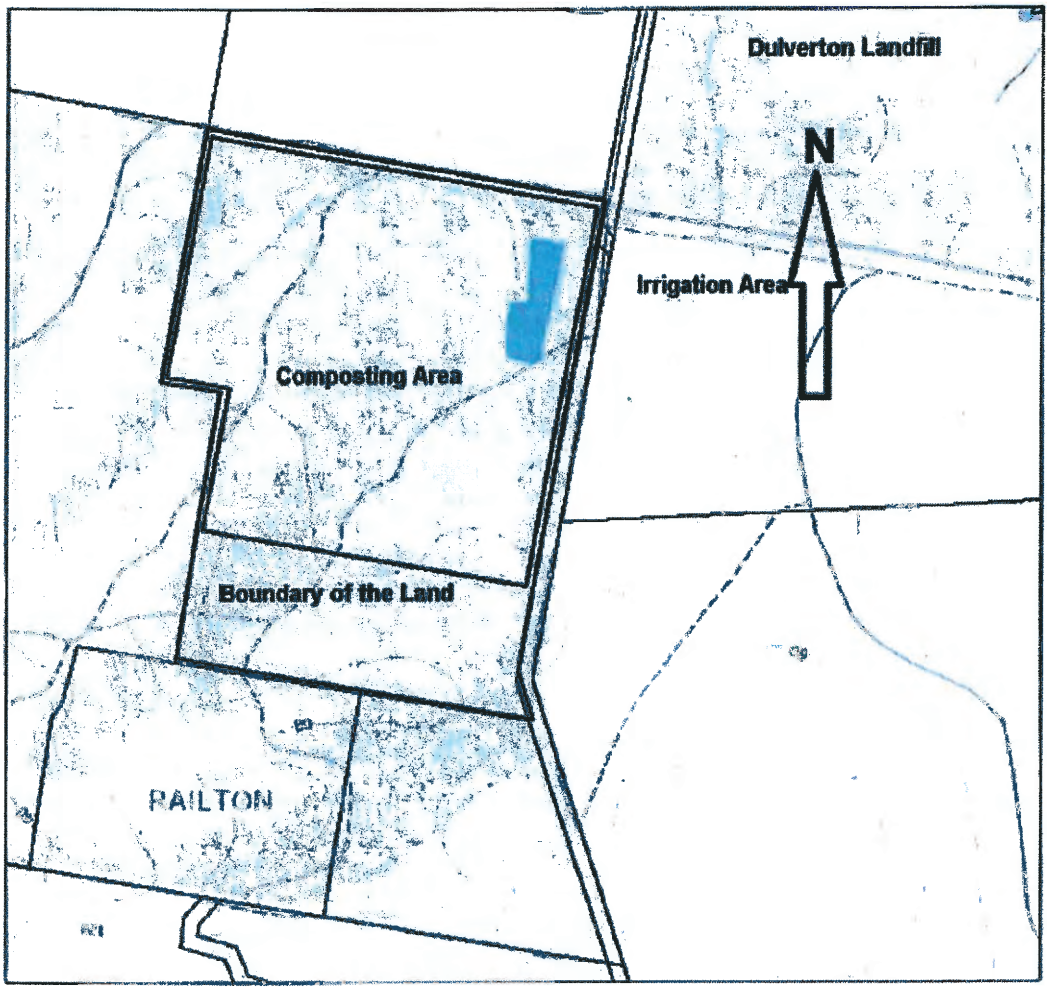
If the person responsible for the activity ceases to be responsible for the activity, they must notify the Director in accordance with Section 45 of the EMPCA.

Other Information

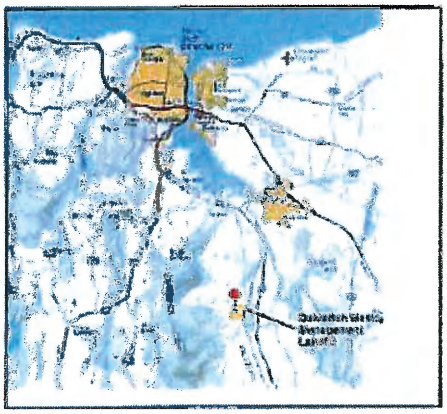
OI1 Notification of incidents under section 32 of EMPCA

Where a person is required by section 32 of EMPCA to notify the Director of the release of a pollutant, the Director can be notified by telephoning 1800 005 171 (a 24-hour emergency telephone number).

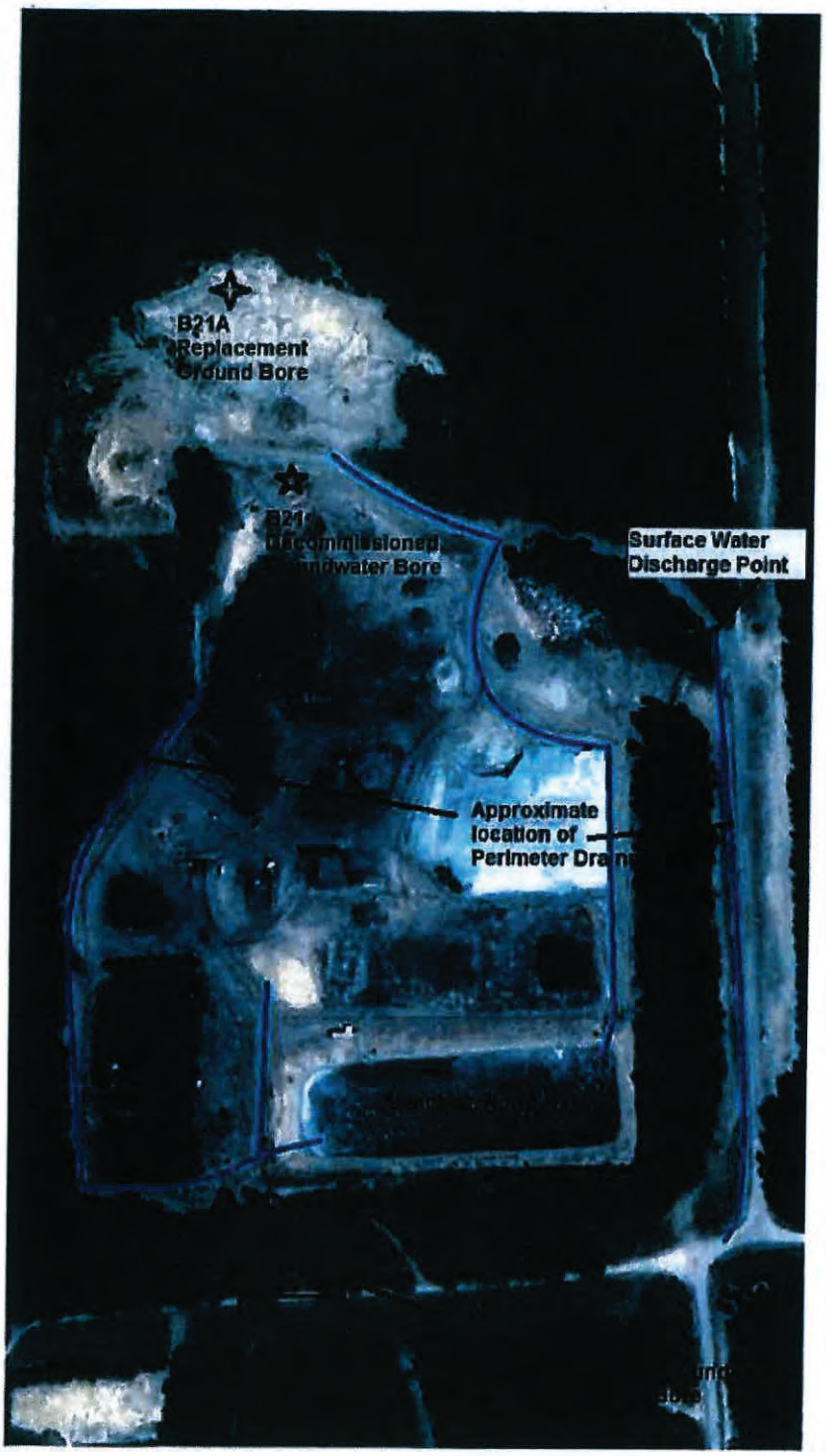
Attachment 1. The Land



Location of the Dulverton Organic Recycling Facility in relation to Devonport



Attachment 2. Location of Groundwater Bores and Drainage Lines



Information Derived from

"Report for Dulverton Landfill Second Stage Hydrogeology Review February 2009"

Attachment 3 Guidelines for EMP Preparation

The following Plans must be included in the EMP.

The plans may be

- Prepared, submitted and updated as a single item;
- Prepared, submitted and updated as individual plans; and may include
- Excerpts from existing Management Plans or Management Systems.

They must be prepared in accordance with best practice environmental management and include, but are not limited to the following content:

Odour Management Plan

The Plan must

1. Identify:
    - All known potential odour sources.
    - Factors that influence the production of odour emissions from these sources.
    - Operational practices to effectively reduce these emissions and to minimise their impacts on neighbours and the local community.
2. Include commitments to implement the identified operational practices to effectively reduce these emissions, and a timetable for the implementation of these practices.

Leachate Management Plan

The Plan must include

1. Details of the leachate collection and management infrastructure for the activity including;
    a. A description of the physical characteristics of the leachate pond, including;
        - depth,
        - volume
        - construction details and
        - other information thought to be relevant
2. Actions to ensure that the system is operated to prevent leachate loss that could reasonably be expected from a 1 in 10 year storm event.
3. A procedure to remove the requirement to discharge into the irrigation area during times of low transpiration and high soil water content.

Karst Management Plan

The Karst Management Plan must include;

1. Initial desktop survey to bring together all existing knowledge of soil and bedrock data and to identify any knowledge gaps that could reasonably present risks to the environmentally correct management of the activity
2. The design and execution of a program to prioritize and address the identified knowledge gaps using field assessments, including but not limited to;
    a. Mapping of soils in the vicinity of the landfill/composting facilities;
    b. Mapping of distribution of bedrock types for the above area; and
    c. Identification of areas of known and potential karst within these bounds.
3. A geological model and a risk assessment that considers sources, pathways and receptors associated with the karst that will be used to better inform future expansion and post closure care of the activity.
4. A Hydrogeological model that determines whether there is a karstic aquifer underlying the site and if so characterises the feature i.e. identify recharge sources, rates and directions of flow, and zones of discharge.
5. A plan for the design and implementation of measures to monitor and minimise impacts. As a minimum this should include ongoing monitoring of ground subsidence and groundwater quality.

Pest Animal Control Plan

. The Plan must:

1. Contain strategies that identify all pest animals known to be active on the Land;
2. Contain strategies that limit access or control the access of the identified animals to putrescible materials on site. This may include control methods for the elimination of targeted species while not impacting upon non-targeted species; and
3. Include actions designed to restrict the ability of pest animals to breed and feed on the land.

Appendix D

Complaints and incidents

dulverton waste management

ISO 14001 2015 Environmental Management

Environmental Management System (EMS)

ENVIRONMENTAL & GENERAL - CORRECTIVE ACTION REGISTER (CAR)

Abbreviation Key:
AW - Ashlee Wallace
BM - Business Manager
DORF - Dulverton Organics Recycling Facility
DWM - Dulverton Waste Management
EMS - Environmental Management System
EPA - Environmental Protection Authority
EPN - Environment Protection Notice
JW - Jenna Westwood
LF - Landfill
ML - Matthew Layton
MP - Mel Pearce
OM - Operations Manager
SESL - Independent Laboratory
SMT - Senior Management Team
SP - Site Personnel
SS - Site Supervisor
SWMS - Safe Work Method Statement
TRES - Trees, Research & Environmental Solution
VS - Veronica Schillings

Status
TC = Task Complete
IP = In Progress
OH = On Hold

INITIAL ACTION								FURTHER INVESTIGATION				
CAR No.	**DWM CAR ID Form #**	**Generated from**	**Date** *(Non-conformance occurred)*	**Description of Non-conformance/Area for Improvement** *(details of the incident as received by reporting officer)*	**Action Taken** *(Outlines direct action taken to rectify the non-conformance. Staff to include MFID for documents and notes kept).*	**Action By** *(Name of staff member who carried out 'action taken')*	**Action Date** *(Is the date that the staff member carried out the 'action taken' or commenced the action)*	**Root Cause of Problem** *(to be updated following an investigation of the non-conformance and what underlying factors may have contributed to it).*	**Preventative Action** *(Measures put in place to prevent the non-conformance from reoccurring).*	**Preventive Action Verified By** *(Name of staff member who carried out 'Root Cause' and 'Preventative Action' investigations)*	**Verification Date** *(Is the date that the staff member has completed the 'Root Cause' and 'Preventative Action' investigations, this cell is to be left blank until both the investigations have been completed)*	**Status**
ENV-676	DWM1052	MG	1/07/2020	A resident has reported an odour complaint stating the odour has been bad for approx. the last 3 days but was particularly bad between 8-9pm Tues 30th June	At the time of the odour the site had been close for some hours with no activity at that time. DWM spoke to complainant to understand their concerns Atmospheric Observations were: No wind, 7 degrees overnight and fog was held in the Railton Valley.	ML	1/07/2020	Possibly the odour has been generated from one of the 2 activities on site. DWM are reviewing all procedures and refining any practices as appropriate.	DWM continue to improve processes and site personnel adhere to EMS procedures to reduce the likelihood of odour.	ML	1/07/2020	TC
ENV-677	DWM1053	MP	9/07/2020	A resident has reported an odour complaint stating that the odour is really bad this morning, they can hardly breathe and that this is an ongoing issue to which they are anxious to get a resolution	The Odour occurred early hours of the morning, before the site was operational. Complainant was clearly upset, and requested they not be contacted. Atmospheric observations: no wind, 4 degrees overnight and fog was held in the Railton Valley. Complaint received directly by DWM Weather Forecast reviewed.	ML	9/07/2020	Possibly the odour has been generated from one of the 2 activities on site. DWM are reviewing all procedures and refining any practices as appropriate.	DWM continue to improve processes and site personnel adhere to EMS procedures to reduce the likelihood of odour.	ML	9/07/2020	TC
ENV-679	DWM1055	AW	27/07/2020	A resident called regarding odour, the resident had left a bedroom window open and the smell had gone right through their house. This has been an ongoing issue for this resident	At the time of the complaint the windrow turner was operating, there was minimal wind and very cold conditions. Both the Site Supervisor and DWM office spoke to the complainant and she requested no further action. The Site Supervisor stopped turning this day to assist in dissipation of any steam.	ML	21/07/2020	Possibly the odour has been generated from one of the 2 activities on site. DWM are reviewing all procedures and refining any practices as appropriate.	DWM continue to improve processes and site personnel adhere to EMS procedures to reduce the likelihood of odour.	ML	21/07/2020	TC
ENV-681	DWM1056	ML	11/08/2020	During a walk around site a green Algae was identified on the top of the Stormwater pond. It is noted there is no risk of overflow to storm water.	Site Supervisor to advise staff to use face shield when using the water if required. Contractor came to site and took Algae samples to identify the Algae and whether there are any toxicity concerns and to advise of next steps.	ML	11/08/2020	Cause not identified.	Contractor sampled water results indicate no further action required. Algae is not toxic.	ML	8/09/2020	TC
ENV-682	DWM1057	JW	21/08/2020	Customer called concerned that DWM compost is not "organic" due to the inclusion of Biosolids.	O&PO spoke to the complainant at length and the only outcome advised was that we would review the new Biosolids Guidelines (2020). The laboratory who tests DWM's compost (SESL) have been requested to review the changes in the Biosolids Guidelines and to advise whether there is any action required by DWM.	ML	20/10/2020	Some customers believe that bio-solids use in compost do not equate with being organic. The DWM website is clear that Biosolids are included in our compost.	DWM marketing material is appropriate - no action required. DWM met with EPA RE New Biosolids guidelines, which is an ongoing discussion point. DWM are awaiting advice from the EPA as to clarify the classification.	MP	20/10/2020	TC
ENV-683	DWM1058	JW	31/08/2020	Nearby resident called (31/08 and 03/09) to advise they were experiencing an influx of flies.	Increased day cover was placed and active area decreased.	ML	4/09/2020	Excessive active landfilling area and season likely to be contributors.	O&PO and contractor to regularly monitor active landfilling area and plan to minimise it.	ML	15/10/2020	TC
ENV-684	0788	SS	7/11/2020	Smoke was observed to be coming from Green Waste pile.	Site Supervisor separated into smaller piles and wet down with water. A sprinkler was set up to keep wet over the weekend.	ML	7/11/2020	Internal combustion within the green waste pile.	No action required, this was observed during a daily inspection of the area prior to the plant opening in the morning. Personnel acted appropriately and contained the incident.	ML	2/12/2020	TC
ENV-685	N/A	ML	2/12/2020	Since commissioning B1 South, landfill leachate has become slightly odorous. Likely due to fresh waste being deposited.	ML has requested pricing to be provided to commission a pump, to be used to empty the lagoon. ML has engaged contractor to conduct leachate testing.	ML	2/12/2020	Unknown, it may be biological or algae based.	Commissioned pump that pumps from the base of the leachate pond and pumped all the leachate from the pond. Will monitor for future occurrences.	ML	27/01/2021	TC

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ENV-686	1062	ML	7/12/2020	Due to the new tipping plate design, a third tipping plate is required to ensure consistency across the site. This will assist in standardising set up requirements	Ordering the manufacture of a Third Tipping plate.	ML	7/12/2020	DWM recognised the opportunity for improvement.	Tipping plate has been received, and installed.	ML	27/01/2021	TC
ENV-687	0793	SS	8/01/2021	Green shed was broken into and the internal door to the tool storage section damaged by the intruders. The fuel truck was tampered with resulting in missing tool pouch and other small things were stolen.	Incidents reported to the police, insurance and DWM. Inventory of items stolen was created.	ML	8/01/2021	Persons unknown gained access to the site through breaking into the locked gates.	Security Cameras have now been installed across the site. For information only: Tas Police advised they have made some progress in the case and would advise further if they are able to identify any of stolen DWM items.	ML	12/04/2021	TC
ENV-688	0794	SS	15/01/2021	SS arrived to find the boom gate lock forcefully opened and the office and crib room broken into. There were smashed windows and doors were open. Power tools, chainsaw, hose reel and air conditioner stolen.	Incidents reported to the police, insurance and DWM. Inventory of items stolen was created.	ML	15/01/2021	Persons unknown gained access to the site through breaking into the locked gates.	Security Cameras have now been installed across the site. For information only: Tas Police advised they have made some progress in the case and would advise further if they are able to identify any of stolen DWM items.	ML	12/04/2021	TC
ENV-689	0795	SS	18/01/2021	The Site Supervisor arrived to find burnout marks on road leading to site. Checked the security camera mounted in a tree and discovered the camera was missing	Incident reported to DWM by the Site Supervisor.	ML	18/01/2021	Persons unknown removed camera, possibly it wasn't well camouflaged and was spotted.	The camera was covered under DWM's insurance and a claim has been completed. Security cameras have been installed across the site. One is reserved for 'roaming' and setup where and as assessed it will be of use.	ML	11/06/2021	TC
ENV-690	N/A	TRES Internal Audit	17/01/2021	**Moderate Risk Identified - Monitoring, Measurement, Analysis & Evaluation:** *The monitoring, measurement, analysis and evaluation of some outsourced processes might not be sufficient to capture errors that could impact environmental performance. Evidence: Tasmanian helicopters chemical application form (CAF) No TH 16251 dated 27-Jun-2020 has errors in total chemical used, with totals equating to 18.0 and not 16.8 hectares treated at the listed application rates for all four chemicals [Stinger, Clomac, Pulse, Crucial], thereby indicating possible recording errors, excessive application or waste.*	Requested and Reviewed copies of CAF's.	ML/AA	2/02/2021	CAF showed there were more chemicals loaded than the spraying ratio per Ha.	Workflow has been updated to require CAF's review on each supplier invoice, and discrepancies to be followed up. The Contractor has confirmed, the remaining chemicals on CAF #16251 were disposed of after spraying as stated on the CAF.	ML/AA	15/02/2021	TC
ENV-691	N/A	TRES Internal Audit	17/01/2021	**Moderate Risk/Opportunity For Improvement Identified- Management Review:** *The management review minutes contain no obvious information on environmental performance trends in monitoring and measuring results, fulfilment of compliance obligations and results of audits. Evidence: Minutes dated 21-Oct-2020 at item 3 are "results of Internal Audits in 2020" yet these do not give results of past audit but indicate future audit and certification body audit is only mentioned as "took place" without any reference to results. There is absolutely no mention of monitoring and measuring results plus fulfilment of compliance obligations. The organisation could ask how figures were calculated.*	AO(E) has sought further clarification from the auditor on this item. As a consequence of that discussion, DWM believe that the management review is fit for purpose for an organisation of our scale. This is reinforced by the external auditor who has not had any issue with the conduct of the management review meeting.	AA	20/04/2021	Opportunity for improvement was recognised by the internal auditor.	A footnote has been developed for the management review meeting minutes template detailing what we already do with respect to ongoing review of the EMS (i.e. CAR list reviews and reporting, cyclic review of EMS documents like Policies, Procedures and Work Instructions, and routine review of the Objectives and Targets register etc.).	AA	9/06/2021	TC

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ENV-692	N/A	SS	3/03/2021	The Site Supervisor has noted on the February Environmental Checklist that some vegetation within the DORF irrigation area are showing signs of distress.	DWM and Site Contractor management believe the issue is related to the current sprinkler system. Gradco have investigated alternative sprinkler options, one has been selected for trial. Trial is on-going.	ML	12/04/2021	DWM believe the cause is due to a sediment build up within the DORF Leachate pond, causing the irrigation sprinklers to block frequently.	All sprinklers within the irrigation zone have been replaced. The trial has so far demonstrated better coverage and less blockages. Filter has been installed.	ML	20/08/2021	TC
ENV-693	0800	SS	19/03/2021	Odour Complaint received via the Site Supervisor, from a Railton Road Neighbour.	The Site Supervisor spoke with the neighbour, who advised it's the first time in a long time he has had any issues with odour at his property. The Site Supervisor confirmed with DWM that there did appear to be some odour onsite although the source was difficult to identify.	SS/AA	19/03/2021	It is believed a combination of factors, including the conditions on the day, contributed to the potential for odour to leave the site.	AA and the Site Supervisor completed a review of the circumstances to recognise and avoid this combination of factors in the future.	19/03/2021	AA	TC
ENV-694	N/a	ML	21/02/2021	A Director raised an ABC article regarding compost being contaminated with herbicides in Victoria. DWM conducted a due-diligence check to understand potential risk to DWM.	ML spoke to a Contractor, whos expertese is composting, in regards to the Victorian incident seeking further detail, they indicated the risk was likely low, but samples for testing have been sent to them for analysis.	ML	22/02/2021	The facility in Victoria, received a volume of feedstock contaminated with Herbicide.	DWM Tested the current stockpile for Herbicide, and pesticide and all results were clear at identifiable levels. This was added to the CTR for validation annually.	ML	24.03.2021	TC
ENV-695	N/a	ML	21/02/2021	Waste inputs customr raised concern with DWM regarding the amount of Hydrocarbons in Biosolids, being retained by compost. DWM conducted a due-diligence check to understand the potential risk to DWM	ML spoke to composting expertese Contractor regarding the concerns, further detail was provided, that when this test is carried out the component measures is carbon. Their initial thoughts were that the risk was extremely low.	ML	22/02/2021	Hydrocarbons, originate from the sewage treatment process, and associated facilities	DWM tested the current stockpile for hydrocarbons, and the levels returned were below 800 mg/kg. For context, the EPA guide for soil contamination requires a result of <1,000 mg/kg for soil to be classified as clean fill.	ML	24.03.2021	TC
ENV-696	0503	SS	7/04/2021	When processing green waste loader operator found a steel chair, hose reel, scrap steel & lots more rubbish in bucket of waste.	Site personnel are manually removing contamination from the green waste as its used.	SS	7/04/2021	After investigating, it was found the contamination entered the waste after it was mulched while still onsite at the Waste Transfer Station.	MP contacted the Waste Transfer Station to advise them of the contamination, and requested they be more conscious of this issue in the future. Site personnel are aware of the issue and are monitoring the incoming wastes for contamination.	MP	14/04/2021	TC
ENV-697	0504	SS	12/04/2021	The Site Supervisor found two locks were removed from the back boom gate on the main entrance.	The Site Supervisor ordered and installed two new locks for the boom gate.	SS	12/04/2021	DWM cannot identify how the locks were removed, it is assumed to be by those wishing to trespass onsite.	The new locks have arrived onsite and are now in use.	SS	9/06/2021	TC
ENV-698	0505	SS	12/04/2021	There was a small fire on Landfill after the operator ran over something and it ignited.	The operator saw the smoke and put it out immediately by spreading and moving the waste to the edge of the landfill.	SS	12/04/2021	The machine drove over something in the landfill that sparked and caught alight.	It is not possible to completely prevent this from occurring due to the varied nature of the waste disposed in the landfill. Machinery operators will remove waste, such as batteries, if they are noticed before compacting.	AA	14/04/2021	TC

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ENV-699	DWM-1063	AA	13/04/2021	The Site Supervisor has reported to AA that over a number of loads delivered today, from a WTS, there would have been 40 tyres which site staff were unaware of until they tipped their waste into the Landfill.	MP contacted the WTS and advised them we will not be able to accept their waste if it continues to be contaminated with tyres. They were asked to investigate and provide a response to DWM, at this stage it appears to be an isolated incident.	MP/AA	13/04/2021	Operators at the WTS were not preventing and/or removing tyres incorrectly disposed of as general waste. This issue was not evident to the landfill operator until the bin contents were spread across the landfill by the compactor.	It is not possible to completely prevent this from occurring due to the varied nature of the waste disposed in the landfill. The WTS Supervisor has raised this issue with WTS staff and provided a refresher on what can and cannot be placed into general waste and spotting suspect customers at the gate. The WTS advised that they cannot pinpoint who or when the tyres came into the WTS and suspect it was a one off incident.	AA	14/04/2021	TC
ENV-700	0507	SS	20/04/2021	The loader operator at the DORF noticed smoke coming from green waste pile.	Operator successfully followed DWM fire extinguishing procedures and the incident was quickly resolved.	SS	20/04/2021	Internal combustion within the green waste pile.	DWM procedures were reviewed and deemed sufficient. The concern was raised during the daily inspection of the area. Personnel acted appropriately and contained the incident.	ML	9/06/2021	TC
ENV-701	DWM1064	ML	21.04.2021	On the road travelling to site, OP&O found that a customer truck had left the road and was sitting in the drain with 2 wheels off the ground. The customer's management team were already on the scene.	DWM assisted with the incident through; using a DWM vehicle for traffic management; securing the truck with a wheel loader and , using an excavator to remove truck return truck to the road.	ML	21/04/2021	There was no evidence of road damage or hazards to have caused this incident. A combination of driver error and weather conditions was determined as the cause.	DWM/ Site Contractor staff provided appropriate assistance to the customer and ensured safe access to and from the DWM site for others. The OP&O discussed the incident with the customers management team at the time of the event and they completed their own incident investigation. This event did not occur onsite and there is no further action required.	ML	9/06/2021	TC
ENV-708	N/A	BDO IT & Finance Systems Internal Audit Report	6/05/2021	**iWeigh** - The current interface between iWeigh and MYOB is manual and inefficient, with increased risk of human error and fraud. Recommended to explore options for automated interfacing or bulk importing of data to improve this process.	Currently investigating opportunities to implement a 'linking program' which will automatically take the data from iWeigh and enter it into MYOB for reviewing (this refers mostly to customer waste disposal data). Scheduled for follow up with M-Files service provider in November.	JW/MB	10/01/2022	Proactive suggestion resulting from the Internal Audit to improve processes and prevent the likelihood of fraud.	DWMs M-Files service provider built a software solution to import weighbridge data to the invoicing software, however the procedure to do this became more arduous than the original method, and had greater risk of innacuracy and error than our original process. Some elements of this solution were incorporated and while DWM continue to actively investigate improvements for systems and processes, segregation of duties in the team is considered an adequate mitigation measure.	MB	17/04/2023	TC
ENV-709	0509	SS	21.05.2021	Fire in green waste pile at the DORF.	DWM/ Site Contractor staff followed procedure and successfully contained and extinguished the fire.	SS	21/05/2021	Internal combustion within the green waste pile.	No action required, this was observed during a daily inspection of the area. Personnel acted appropriately and contained the incident.	ML	9/06/2021	TC
ENV-711	1066	AW	23.06.2021	Odour complaint received from nearby resident via Latrobe Council	Reviewed site operations data, and there appears no direct link to DWM	AA	1/07/2021	Nil	DWM continue to improve processes and site personnel adhere to EMS procedures to reduce the likelihood of odour.	ML	2/08/2021	TC
ENV-712	N/A	BSI Audit	16.06.2021	*****Opportunity For Improvement***** Internal audit planning documents could outline more detail regarding: * Internal auditing activities in place. * Processes / system audits that are programmed on risk and the importance of the activity being assessed.	Details of the concern were sent to the Internal Auditor. Internal Auditor to update Audit plana based on the feedback received.	MB	3/08/2021	Opportunity for Improvement Raised at external audit.	Internal Audit plan received on 31.08.21 included expanded details as requested from the External Audit Report. Internal Audit Report details Risk levels and compliance concerns.	MB	31/08/2021	TC
ENV-713	1067	AW	18.08.2021	Excess fly complaint received from nearby resident. The past week has seen a significant increase in flies for this time of year.	Site inspection was conducted. Good cover was evident at the DORF and Landfill.	ML	18.08.21	No evidence on Site of excess flies. High probability issue unrelated to DWM.	N/A	ML	20.08.21	TC

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ENV-714		Internal Audit	17.09.2021	Internal Audit ISSUE No 2021-02 = R 010 Register of Hazardous Substances has not been updated to indicate latest SDS date as per "REMINDER: If this is a current SDS, don't forget to link it to the R 010 [MFID 15570]" on the meta-data card. Also, the table has "MSDS" rather than "SDS".	Hazardous Substances Register has been updated.	MB	20/09/2021	SDS Metadata does not contain the information to assist updating of the Register. Workflow can be improved to ensure update occurs when documents are updated.	Instructions have been added to the Mfiles workflow to ensure the register details are updated at the same time as the SDS is checked.	MB	1/10/2021	TC
ENV-715		Internal Audit	17.09.2021	ISSUE N0 2021-01 = Consider including more clear reference to emergency scenario actions that refer to prevention or mitigation of adverse environmental impacts. For instance, the 12/05/2021 scenario had "Plant/Interaction Collision" and the control of potential petrochemical spills, pollution and contamination of soil and water could be noted.	Review of how scenarios are planned and how environmental aspects and impacts can be included in the event.	MB	22/09/2021	Site Contractor staff plan the scenarios. Environmental factors are not included in the template during the planning stages.	Scenario planners have been requested to include environmental aspects and impacts in the template and planning for scenario days.	MB	30/09/2021	TC
ENV-716		Internal Audit	17.09.2021	ISSUE No 2021-03 = Record of helicopter application of lime indicates 8.5 tonnes total used, application rate of 0.25 tonnes per load and 36 loads does not calculate correctly.	Helicopter spraying will be unlikely to be performed in the future. DWM and Site Contractor have reverted to previous weed control measures to reduce risks to Flora and Fauna and ensure cost controls are in place.	ML	20/09/2021	It has proved difficult to uniformly apply herbicide with Helicopter spraying.	Have reverted to conventional herbicie application techniques.	ML	30/09/2021	TC
ENV-717		Internal Audit	17.09.21	ISSUE No 2021-04 = Record of management review does not have start time even though it is meant to show "Meeting Start Date and Time"	Start and finish times have been noted in Management Review meeting minutes for October 2021.	MB	15.10.2021	Details of meeting start and end time were not completed on the minutes template.	Importance of details being recorded correctly has been communicated to staff.	MB	20.09.2021	TC
ENV-718		Finance	15.08.21	DWM customer placed in voluntary administration and have outstanding debts.	Review of account and debts outstanding. Weighbridge tags have been deactivated. New account with another customer has been created. Debtor forms have been submitted with Adminstrators.	JW/MG/ML	24/08/2021	Customer account not secured.	DWM credit terms and debtor follow up procedures have ben reviewed. Account forms have been updated with assistance from DWm lawyers. Credit caps have been applied to new accounts.	MB	14.10.2021	TC
ENV-719	0513	SS	23/11/2021	Small fire on the landfill.	The operator pushed the smouldering material to the side of the landfill and smothered it with soil.	Site Staff	23/11/2021	Combustible materials in the landfill	N/A	ML	25/11/2021	TC
ENV-720	0514	SS	30/11/2021	Fire on the landfill.	The compactor operator squashed a small battery in a load of waste which ignited a small fire. The operator picked up the battery with a spade and removed it from the landfill. The excavator operator removed the remaining smouldering material from the landfill. Gradco CAR - HAll 1132	Site Staff	30/11/2021	Combustible materials in the landfill	N/A	ML	2/12/2021	TC
ENV-721	0515	SS	1/12/2021	Fire on the landfill.	The compactor operator noticed smoke coming from a load disposed of at the tipping plate. The compactor and excavator operators removed the load from the landfill, placed it on a clay surface and smothered it with material.	Site Staff	1/12/2021	Combustible materials being delivered	N/A	ML	3/12/2021	TC
ENV-722	DWM1068	AO	31/12/2021	Aresident called to report odour coming from site. They were frustrated this was still occurring and felt nothing had been done to fix the issue. The resident advised the odour has been bad for around a week.	AO contacted site who advised windrow turning had been underway and with the increased heat and wind, the odour problem was suspected to have been exacerbated. Turning had since finished and therefor the odour issue should ease.	AO	31/12/2021	It is suspected a combination of weather conditions contributed to odour leaving the site.	DWM continue to improve processes and site personnel adhere to EMS procedures to reduce the likelihood of odour.	ML	3/02/2022	TC
ENV-723	DWM1069	AO	31/12/2021	A resident called to report odour coming from site. The resident advised the odour has been quite bad for the last week.	AO had contacted site regarding the earlier complaint and advised the resident that windrow turning had finished and the odour issue should ease.	AO	31/01/2021	It is suspected a combination of weather conditions contributed to odour leaving the site.	DWM continue to improve processes and site personnel adhere to EMS procedures to reduce the likelihood of odour.	ML	3/02/2022	TC
ENV-724	DWM1070	AO	31/12/2021	A resident called to report odour coming from site. The resident advised the odour had been strong for the last week.	AO had contacted site regarding the earlier complaint and advised the resident that windrow turning had finished and the odour issue should ease.	AO	31/01/2021	It is suspected a combination of weather conditions contributed to odour leaving the site.	DWM continue to improve processes and site personnel adhere to EMS procedures to reduce the likelihood of odour.	ML	3/02/2022	TC

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ENV-725	0517	SS	31/12/2021	Fire on the landfill.	The operator used the excavator to move the burning material from the landfill to gravel area away from other material. The burning material was covered with growing medium to extinguish the fire. The site supervisor confirmed the fire had been extinguished before leaving site for the day.	SS	31/01/2021	Combustible materials in the landfill	N/A	ML	3/02/2022	TC
ENV-726	DWM1071	AO	19/01/2022	A resident called to report the odour from site was very bad both this afternoon and yesterday afternoon. Odour wasn't a problem in the morning, but became almost unbearable in the afternoon.	The OP&O conducted an initial investigation and found no obvious causes for the increased odour leaving site.	ML	19/01/2022	After further investigation, it is suspected a combination of weather conditions has contributed to odour leaving the site.	DWM continue to improve processes and site personnel adhere to EMS procedures to reduce the likelihood of odour.	ML	3/02/2022	TC
ENV-727	DWM1072	AO(E)	2/02/2022	During stage 3 of Railton Road upgrade, the road works contractor punctured the leachate pipeline between DWM site and Latrobe. The pump station was isolated at the time (standard practice during road upgrade). This allowed only the residual pressure to escape into the excavation area. The contractor notified O&PO.	The O&PO notified site staff to maintain pump isolation, a contractor was organised to pump the escaped liquid from the excavation area which was then disposed of onsite.A contractor was engaged to repair the pipeline which was fixed by end of day on 03/02/2022.	ML	2/02/2022	Documentation at State Growth showed inaccurate information for the pipeline infrastructure.	OP&O to work with State Growth to update pipeline mapping. The section of pipeline will be aligned with contractor survey as part of stage 3 works.	ML	15/02/2022	TC
ENV-728	DWM1073	SS	8/02/2022	At 1.58am 08/02/2022 two unknown individuals entered the Green shed through a roller door which was forced open. They were in the shed for 10 mins and stole several low value items.	The Police attended the scene. A review of CCTV footage identified the make/model and number plate of the vehicle. These details were provided to the Police.	SS	8/02/2022	Unknown Individuals forced access to DWM site by cutting through boundary fence.	The OP&O and the neighbouring property owner arranged for barriers to be installed. The barriers prevent vehicle access to DWM's boundary fences.	ML	19/07/2022	TC
ENV-729	DWM1074	ML	14/02/2022	Latrobe Council received a complaint from a resident who advised that noise is starting at 4.00am, when inspecting the noise at 4.00am machinery was seen working to the left of the DWM weighbridge.	The OP&O spoke with neighbouring block in which machinery was being operated for logging.	ML	14/02/2022	After discussion with the company they confirmed they were responsible for the noise.	The OP&O met with the company and an agreement to alter their start time to 6am was made.	ML	15/02/2022	TC
ENV-730	DWM1075	ML	10/02/2022	The EPA received an odour complaint which they have associated with DWM operations, the EPA advised the caller described the odour to be like dead animals/rotting flesh.	DWM and the EPA have agreed that the odour is related to a specific waste stream, which was being disposed of at DWM as part of an environmental emergency response. The OP&O spoke with the EPA and agreed that DWM would review current processes and provide the EPA with an update. As an immediate action DWM would stop receiving additonal loads and would frequently cover the deep burial area with day cover.	ML	10/02/2022	The OP&O spoke with the EPA and both determined the odour to be related to a specific waste stream.	The OP&O reviewed the waste stream disposal process in conjuction with the customer. Mulitiple changes were made, including the frequency of loads brought in, and the acceptable age of those loads. The covering process of the deep burial area was also updated to include thicker and more frequent covering requirements.	ML	15/02/2022	TC
ENV-731	DWM1076	AA	22/02/2022	Resident called complaining about the odour coming from site.	The OP&O conducted an initial investigation and found no obvious causes for the increased odour leaving site.	ML	22/02/2022	Possibly the odour has been generated from one of the 2 activities on site (landfill or DORF).	DWM continue to improve processes and site personnel adhere to EMS procedures to reduce the likelihood of odour.	ML	5/04/2022	TC
ENV-732	SWM1077	AW	25/02/2022	Residentcalled with odour complaint.	The OP&O conducted an initial investigation and found no obvious causes for the increased odour leaving site.	ML	25/02/2022	Possibly the odour has been generated from one of the 2 activities on site (landfill or DORF).	DWM continue to improve processes and site personnel adhere to EMS procedures to reduce the likelihood of odour.	ML	5/04/2022	TC
ENV-733	DWM1078	MS	28/02/2022	The OP&O observed a contractor on a neighbouring property creating a traffic hazard on Dawson Siding Road, just after the railway intersection. Contractor trucks were reversing blind to the road corner.	The OP&O alerted relevant customers to the potential hazard and made contact with the neighbour to rectify the hazard.	ML	28/02/2022	The neighbouring contactor was the cause of the traffic hazard.	The OP&O made contact with the contactor, the contractor advised they would make alternate arrangements for their trucks when leaving neighbouring properties.	ML	5/04/2022	TC
ENV-734	DWM1080	AA	22/03/2022	Resident called with an odour complaint	The AO(E) called the Site Supervisor who advised that compost windrows had been turned in the morning, and that site staff had noticed the odour as well.	AA	22/03/2022	Possibly the odour has been generated from one of the 2 activities on site (landfill or DORF).	DWM continue to improve processes and site personnel adhere to EMS procedures to reduce the likelihood of odour.	ML	5/04/2022	TC

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ENV-735	DWM1081	AA	13/04/2022	DWM were notified by a third party that a waste disposal customer had lost some of its load along Railton Road on its way to site.	Site staff assisted the driver in cleaning up the spilt material and with disposing of the remaining waste in the landfill. The Site Supervisor advised DWM that the EPA and the local council were contacted.	SS	13/04/2022	Customer delivering waste had over-filled and not appropriately covered their waste.	DWM Site Induction clearly articulates the expected minimum requirements of appropriate load management. DWM contacted appropriate enforcement agencies of the event.	ML	20/04/2022	TC
ENV-736	DWM1082	MB	17/04/2022	Police called on Easter Sunday and left a message that the office was not 'secure'. MG was in office the next day and found the door propped open.	Investigation of office access was undertaken, including contacting other building occupants for any helpful information. It was discovered that reports of children climbing to the roof had been made. The door to the balcony was found to be unlocked. No items were found to be missing.	MB	20/04/2022	Young persons had accessed the office through the Balcony door.	Staff and regular office contractors were reminded to keep balcony locked. Entry code to shared zone was changed.	MB	30/04/2022	TC
ENV-737	0520	SS	26/04/2022	Fire within the green waste stockpile	The operator at the DORF pulled the stockpile apart with an excavator and placed a sprinkler on the stockpile. Personnel will monitor for 2 days.	SS	26/04/2022	Internal combustion within the green waste pile.	No action required, this was observed during a daily inspection of the area. Personnel acted appropriately and contained the incident.	AA	7/06/2022	TC
ENV-738	DWM1083	ML	12/06/2022	During a routine preventative maintenance inspection of the leachate pipeline, leachate was found to be leaking at a valve along the pipeline.	The leachate was contained to the catchment area and sawdust was used to soak up the spilled leachate. A contractor was called to repair the valve. This event did not exceed the requirements for EPA Notification.	SS	12/06/2022	The valve seemed to have started deteriorating nearing the end of its life span.	Investigations on the pipeline are complete, a flushing point has been added to allow for periodic flushing of the line. The line will then be flushed, removing silt which appears the contributing root cuase of the air valve failures. A long term scheduled maintenance system is currently being investigated, and will be reported separately as per GTL #1588082.	ML	10/02/2023	TC
ENV-739	DWM1084	ML	16/06/2022	DWM pump station interlock failed. (Interlock is an error detection system which should slow leachate flow if the Gilbert Street pump station was to reach its flow capacity).	The Trade Waste Company made contact with the OM. DWM isolated the compromised pump system and engaged Cromarty to investigate the cause.	ML	16/06/2022	Investigation indicates this is likely the result of a software issue.	DWM continue to liaise with the technical contractor regarding a report to identify the cause and review recommendation.	ML		IP
ENV-740	DWM1085	JW	22/06/2022	Fraudulent transactions identified on corporate credit card	AO(F) called the bank to cancel card & submit a request to dispute transactions.	JW	22/06/2022	Unknown individual obtained credit card information fraudulently.	DWM 's systems acted effectively. The fraudulent transactions were credited by the bank.	JW	7/07/2022	TC
ENV-741	0521	SS	28/07/2022	At 5.45am, the Site Supervisor arrived on site and observed flames on the landfill.	The Site Supervisor assessed the situation, and began using the compactor to separate and move the burning material to the edge of the landfill, this contained the fire. The Site Supervisor then smothered the material with clay to ensure the fire was completely extinguished.	SS	28/07/2022	An item of waste (likely a battery) ignited.	It is not possible to completely prevent this from occurring due to the varied nature of the waste disposed in the landfill. Machinery operators will remove waste, such as batteries, if they are noticed before compacting. AO(E) worked with Site Contractor's HSE team to make minor updates to DWM's incident response process to ensure they are best practice.	AA	20/09/2022	TC
ENV-742	0522	SS	31/07/2022	At 9.30am, a site contractor operator arrived on site to find a small fire on the landfill.	The operator used the Bomag to push the fire towards the clay capping and placed growing medium on top to extinguish the fire.	Site Operator.	31/07/2022	An item of waste (likely a battery) ignited.	It is not possible to completely prevent this from occurring due to the varied nature of the waste disposed in the landfill. Machinery operators will remove waste, such as batteries, if they are noticed before compacting. AO(E) worked with Gradco's Site Contractor's team to make minor updates to DWM's incident response process to ensure they are best practice.	AA	20/09/2022	TC

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ENV-743	DWM1086	AA	17/08/2022	Post plantation harvesting on neighbouring land investigated for effects on DWM site. Flooding of the harvested land is likely to affect the usability of Dawsons Siding Road, and long term, could have negative effects on the karst system below DWM's site. The neighbouring plantation appears to have been harvested all the way to Caroline Creek. DWM's understanding is that there has always been a reserve area/buffer for Caroline Creek.	During a site visit, DWM raised concerns with the water branch of Dept of Natural Resources and Environment (NRE). NRE indicated the buffer/exclusion zone should have been 40 metres on either side of Caroline Creek. At the time, NRE were investigating increased sediment loads within the Caroline creek catchment. NRE's inspection found DWM not responsible.	ML	14/09/2022	It appears the harvesting contractor didn't comply with the Forest Practices Code.	CEO is currently investigating with NRE regarding the harvesting methods used, and to understand the effects this may have on DWM's conservation area that surrounds Caroline Creek. OM has been in discussions with plantation owner about removing debri from Caroline Creek. The plantation owner advised that they still have an open harvest plan on the block and they're looking to undertake the works in accordance with this current plan.	VS		IP
ENV-744	DWM1087	AA	1/08/2022	Tyres were disposed of in the landfill	The Site supervisor provided an image of the tyres on the landfill to the OP&O. The OP&O requested the customer/carrier investigate.	ML	8/08/2022	Tyres were disposed of in a commercial skip bin, and were not visible prior to emptying the load on site.	The transport company were informed of the error, and have undertaken awareness training with the customer.	ML	14/10/2022	TC
ENV-745	DWM1088	AA	16/09/2022	Limited DORF leachate storage freeboard presents overflow risk.	The OP&O, CEO and SS inspected the site on the 16/09/2022. It was agreed to pump the contaminated stormwater into the emergency leachate storage pond to establish additional holding capacity and prevent the existing DORF storage pond from reaching capacity.	GP	16/09/2022	Excess ground saturation due to rainfall has caused irrigation run-off.	DWM continue to manage leachate storage. Several high liquid waste streams have been ceased temporarily and approval from EPA for management of freeboard achieved 1 November 2022.	VS	29/11/2022	TC
ENV-746	DWM 1089	AA	19/09/2022	A compost customer received compost contaminated with raw plant materials.	AA initially investigated with the contractor logistics manager, who confirmed the truck used for compost delivery was also used beforehand for a green waste disposal on site.	AA	20/09/2022	The contractor truck was used for disposing green waste on site before it was used to delivery compost.	The issue has been raised with the contractor logistics team, and the contractor's General Manager. The driver responsible for the delivery has been reprimanded and will no longer deliver compost to this customer. The delivery charges were waived by the cartage contractor.	AA	23/09/2022	TC
ENV-747	DWM 1090	AA	22/09/2022	Excavator #160 had a hydraulic line burst causing a large quantity of hydraulic oil to spill onto the ground	Spill kit used to contain and clean up oil. Contaminated earth removed with Excavator and dumped into a suitable landfill location on site. Gradco maintenance schedule for repair. HSE team notified.	GP	22/09/2022	Mechanical failure of hydraulic line	Operators have been reminded to ensure they check hydraulic lines for wear and tear during pre-start checks.	AA	7/10/2022	TC
ENV-748	DWM 1091	AW	28/09/2022	A resident of Big Bend Road called to advise there has been an influx of flies in the past couple of weeks with a more significant increase in the last couple of days since the rain has eased. The resident spoke to a neighbour from Dawsons Siding who is also experiencing increased fly issues.	DWM inspection the site and found no unusual activity.	ML	29/09/2022	Changes in weather conditions caused influx of flies. No evidence on Site of excess flies.	N/A	ML	29/09/2022	TC
ENV-749	DWM 1092	MB	13/10/2022	Significant rainfall event occurrence, impacting Site operations and customers.	Monitoring of site conditions, ensuring a safe working environment. Enacting the Emergency Management Plan and closure of site as required. Maintain regular contact with customers and stakeholders (see communications file MFID 1590697). EPA have been advised in relation to leachate management at both DORF and Landfill.	ML	13/10/2022	Forecasted rain event.	DWM enacted the emergency management plan, ensuring site personnel safety and closure of the site at 3pm on 13/10/2022. The site has reopened at midday on the 14/10/2022 to critical landfill customers only, the DORF will remain closed until the 15/10/2022, where extended hours will be offered.	ML	15/10/2022	TC
ENV-750	DWM 1093	AC	31/10/2022	Overflow of Leachate Storage Pond	Reported to EPA hotline.	ML	31/10/2022	Severe weather caused a large volume of leachate to be generated, with out warning.	CEO and OM met with EPA regarding the weather pattern currently being experienced.	VS	29/10/2022	TC
ENV-751	DWM 1094	AC	26/10/2022	Fluorescent Dye in Caronline Creek	ML and GP collected data from site; sent to EPA; EPA replied stating that they could confirm that the dye had not come from DWM.	ML	31/10/2022	Cement Australia released a controled volume of Fluorescent Dye into Caroline Creek under EPA approval.	No Action	ML	6/12/2022	TC

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ENV-752	CAR524	AM	3/01/2023	Difficulty backing truck trailer to deep burial	Load of waste came in and couldn't get back to tipping plate as trailer made it difficult to back up, so needed to tip off at Landfill tipping plates to unload, and then pushed into deep burial hole as needed. Burial trailers are harder to navigate back up towards hole.	AM	3/01/2023	Changing site layout and continuous adjustments.	Incident noted and monitored.	ML	1/02/2023	TC
ENV-753	DWM1097	AW	24/01/2023	A resident close to site has called with an odour complaint. They have noticed a bad fish waste odour coming from site since Christmas.	Phone conferene between SS and OM. Deep burial holes filled with extra depth to reduce smell after end of day.	SS	24/01/2023	Waste delivery caused excessive smell for short period.	Site followed correct procedure and odour was managed within expected timeframes.	ML	14/04/2023	TC
ENV-754	DWM1098	ML	7/03/2023	Stormwater left COVA construction site and entered DWM's DORF leachate catchment.	Temporary drain was installed until the final concrete culverts could be installed.	ML	8/03/2023	Stormwater culverts were incomplete and a rain event was experinced onsite.	Stormwater culverts have been installed to the level of final design. Regular environmental walkthroughs are now being carried out by COVA management and Superintendent.	ML	14/04/2023	TC
ENV-755	DWM0530	SS	1/03/2023	Damage to boom gate and vehicle on fire	When SS arrived at site, front boom gate had been rammed & a burnt out ute. Police called, arrived at 5:30am. Report number: 42-01032023	SS	1/03/2023	The boom gate is accessible by members of the public.	Difficult to prevent vandalism that occurs on land that can be accessed by members of the public.	ML	14/04/2023	TC
ENV-756	DWM0533	SS	21/05/2023	The tanks which were under assembly for the new leachate pumpstation were dislodged during a weather event.	SS received a call from site saying that the tanks had moved and have been damaged by high winds. The contractor was notified and the tanks (and area around) was made safe.	ML	21/05/2023	The weather event occurred during assembly, prior to them being anchored to the concrete. Anchoring occurs during hydrostatic testing.	Tanks were structurally assessed by the contractor and Superintendent and found to be undamaged. Tanks were moved back into position and temporary anchoring was installed.	ML	31/05/2023	TC
ENV-758	DWM1100	AC	27/06/2023	A resident contacted the office, reporting a sour milk smell which they believe was originating from our site.	CEO and SS advised. SS visited the location and was unable to notice a smell.	AC	27/06/2023	Possibly the odour has been generated from one of the 2 activities on site (landfill or DORF).	DWM continue to improve processes and site personnel adhere to EMS procedures to reduce the likelihood of odour.	MP	30/06/2023	TC

Appendix E

Audit reports and EMS certification

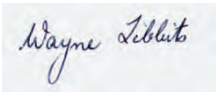
AS/NZS ISO 14001:2015 Internal Audit

Client: Dulverton Waste Management Pty Ltd

Date of this internal audit: Monday 23rd November 2020

Date this report finalised and issued: Sunday 17th January 2021

Name of Auditor: Wayne Tibbits

Signature of Auditor: 

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Executive summary

- This report relates to information gathered during a contracted internal audit during a visit in 2020 to the two sites of Dulverton Waste Management, namely the waste management facility and the office. Some photos as a form of evidence were taken and are appended here.
- Throughout this report Dulverton Waste Management may be referred to as DWM or the organisation.
- The scope and focus of this has been to gather evidence to determine whether the environmental management system conforms to the organisation's own requirements, those of the 14001 standard's requirements, and is effectively implemented and maintained.
- In this internal audit only a subset of ISO14001 requirements has been selected for the scope, details of which were given in an audit plan issued 7th October 2020.
- This is internal audit N03. It follows internal audits N° 1 & 2 conducted in October 2018 and November 2019. It was scheduled for late winter [July/August] but was postponed at the request of DWM due to staffing changes and availability. There is one further internal audit planned, N° 4. The timing of these and their associated scopes may now need revision.
- This report suggests that Dulverton Waste Management has many parts of its system that generally conform to the standard.
- Some areas of moderate risk exposure were also identified [see below].
- The area identified at the previous audit to be at potential significant risk for conformance is currently being addressed through investigation of a swipe card entry system.
- Nonetheless, overall the system appears robust enough to be capable of meeting that required of ongoing audits of a certification body, provided systems are being properly implemented and maintained at DWM.
- One identified hazard that can pose potential safety risk is presented in photo N° 3-5. This relates to potential of drowning in ponds when containing water. This is known by the organisation.

Overall plan for all internal audits

The plan for this audit needs to be considered in light of the original proposal provided to DWM on 30th May 2018. This proposal was a sequence of audits covering three years that included four separate internal audits, each as one day on site, plus a range of seasons sampled and times of the day DWN Facility to be visited.

- The first audit, N° 1, was conducted as planned in October 2018.
- After this, the Environmental Officer left the organisation in January 2019. Their role was to be covered by two people, Matthew and Abbie.
- The next audit, N° 2, was planned for August 2019. When contacted in July 2019, the organisation informed the internal auditor that the two people covering the role of former Environmental Officer would not be available until November 2019. Hence, there was a delay of the second audit, which was conducted in November 2019.
- The next audit, N° 3, was planned for March 2020 with a fourth and final audit in November 2020. In late February 2020, DWM chose to delay N° 3 to August 2020 and postpone the final audit until 2021.
- Plans for 2020 were impacted by COVID-19 from early in that year.
- DWM responded in September 2020. At this time a date was selected for Wednesday 21st October, which within a few days was changed at the request of DWM to Monday 19th October. Hence, this audit N° 3 had a specific plan prepared and issued 5th October in which it proposed to expand slightly to incorporate some extra requirements of the standard. A week out from the audit, DWM requested a further delay of audit N° 3 to November. This was accommodated, with a new date set and achieved on Monday 23rd November 2020.
- The remaining audit, N° 4, is scheduled for May 2021.

Audit № 3 scope

The scope has components that are:

Off-site as:

a. This will be done prior to the day on-site, and will assist preparations for that day.
b. DWM were asked to and did provide the following information electronically.
    i. Documented information as evidence of competence of employees and contractors doing work under control of DWM that affects environmental performance. A sample of two employees and two contractor's personnel was suggested.
    ii. Documented information of internal communications in the period December 2019 to August 2020 concerning responses to communications received on its EMS. A sample of three different types was suggested.
    iii. Documented information of external communications in the period December 2019 to August 2020 concerning its EMS. A sample of two different types was suggested. If possible one that relates to compliance obligations and one that does not.
    iv. Its policy, procedure or system reference to communications
    v. Documented information that has been updated after review, with a sample of one piece.
    vi. Documented information that has been created since December 2019, with a sample of one piece.
    vii. Documented information on established operating criteria for its mulch activities.
    viii. Documented information of a single report in the past 12 months that has monitored, measured, analysed and evaluated emissions from the site.
    ix. Documented information of nonconformity and corrective action for two different events. If possible one for DWM Facility and one for the office or management system as a whole.
    x. Any information on how the 11 issues identified at the November 2019 internal audit were considered by the organisation and if appropriate, what actions took place.

On site as:

a. One full day that includes the office as well as Dulverton landfill at Dawson Siding Road.
b. Commence this component of the audit at 08:30 hours.
c. If possible start at Dawson Siding Road.
d. After a period of 2-3 hours at Dawson Siding Road, continue on to the office
e. Conclude the audit by 16:00 hours, with a closing meeting.

Assessed criteria

a. Assess the ISO 14001 system of Dulverton Waste Management with respect to: How it meets the selected subset of ISO requirements?
b. Assess the ISO 14001 system of Dulverton Waste Management with respect to: How well it is implemented and kept in a maintained or improving position?
c. Only a subset of ISO14001 requirements was selected for the scope. These were in accord within the original 2018 proposal to cover all requirements throughout the period covered by the proposal and to give greater focus on areas of higher importance.

Audit methodology

a. Use methods that include observation of work practices, interviews with people and assessment of system components including documented information.
b. Present internal audit results on the performance of the environmental management system to meeting the requirements of this standard, in a report using a colour coding, as done for the previous two audits. This colour coding not only gives an additional visual portrayal of the system effectiveness but also covers the full range from effective and noteworthy through stable, partially ineffective to not conforming. Colour coding is not presented in this plan, but in the report itself.

Performance indicators

Please note: Overall auditor's comments that are general evidence in nature are in black colour font. Evaluated conformance is placed into one of three colour-coded categories. Highlighted traffic light signal colours used are:

- Green = No matter to address conformance is identified. So this is a pass and "green light" towards maintaining certification. Conformance in some cases may be commendable. This is labelled as "Negligible risk".

- Yellow = Any matter or matters to address or confirm conformance is/are identified. DWM should take note and act, as this is an "amber light" on road to certification. This is labelled as "Moderate risk".

- Red = Potentially more serious conformance issue or issues is/are identified. DWM should give this a high priority focus, as this is a "red light" on road to certification. This is labelled as "Significant risk". No part of the system was considered to be in this category.

Specific comments with more detail on matters that are labelled as "moderate risk" are given in orange and sequentially numbered (Issue N^{o} Year- consecutive number).

Where possible, additional comments are included with suggested means by which the matters could be addressed to mitigate risk or other ways to improve the system. These are shown as blue italics font.

Where the requirements were not reviewed for evaluation, then conformance could not be assessed. No priority focus is given to DWM. This is labelled as "Not assessed for risk" and shaded grey.

Comments in relations to conformance with the standard follow.

The table below reports on analysis of assessed evidence at Dulverton Waste Management relating to their system in reference to requirements in AS/NZS ISO 14001.

Requirements of the Standard	Auditor comments on documented reviewed	Conformance signal - risk
Context of the organisation		
4.1 to 4.4	The requirements in this part of the standard were covered in the internal audit N^{o} 2 in 2019. As such, no specific evidence was gathered here. We noted the following action by DWM on an issue identified at internal audit N^{o} 2 in 2019. ISSUE N^{o} 2019-01 = 2019 comments: The organisation's physical boundaries applicable to the EMS are not fully captured in the issued ISO 14001 certificate of the certification body BSI. Evidence: The address of the Devonport office from where the whole EMS is controlled is missing and "145" street address is missing for Dawson Siding Road, Latrobe TAS 7307. 2020 comments: DWM took up suggestion that they could liaise with BSI on this. AA emailed external auditor Craig Hobbins, Requesting updated certificate. Record = MFID – 1570085. Updated Certificate 698108 received and sighted, with both site and office details as requested.	Negligible risk
Leadership		
5.1 to 5.3	The requirements in this part of the standard were covered in the internal audit N^{o} 2 in 2019. As such, no specific evidence was gathered here.	Not assessed for risk
Planning		
6.1.1 General	The requirements in this part of the standard were covered in the internal audit N^{o} 2 in 2019. As such, no specific evidence was gathered here. We noted the following action by DWM on an issue identified at internal audit N^{o} 2 in 2019. ISSUE N^{o} 2019-02 = 2019 comments: The organisation's maintenance of processes needed to meet requirements has missed some bits associated with the change of certification body. Evidence: Whilst the website now has BSI logo, the SAI Global Logo is still used in at least one place, the site induction video. 2020 comments: AA has advised JW to review and update the site induction documents (which is happening now in preparation for Site Inductions in July), to ensure the BSI Logo used. Correct logo has now been applied. DWM has not yet taken up suggestion that they could benefit from a broader check of use of CB's logos.	Negligible risk
6.2 Environmental aspects	The requirements in this part of the standard were covered in the internal audit N^{o} 2 in 2019. As such, no specific evidence was gathered here.	Not assessed for risk
6.1.3 Compliance obligations	The requirements in this part of the standard were covered in the internal audit N^{o} 2 in 2019. As such, no specific evidence was gathered here. We noted the following action by DWM on an issue identified at internal audit N^{o} 2 in 2019. ISSUE N^{o} 2019-03 = 2019 comments: Requirement "h" might not be met? There are periodic bird deterrent measures but not active when waste is tipped before it is covered and compacted. M-Files shows that R 130 with it Biosecurity sheets lists birds have not been a problem and no active deterrent. 2020 comments: DWM took up suggestion that they could liaise with	Negligible risk

Requirements of the Standard	Auditor comments on documented reviewed	Conformance signal - risk
	DPIPWE to clarify this. AA email to Sarah Treweek @ Biosecurity to determine what is classed as a deterrent and/or what type of deterrent is required under our agreement. Details saved in MFID 1570086. Sighted email 3-Mar-20209 from Sarah with comments that noise from machines is sufficient at present but Approved Quarantine Place personnel would need to approve any measures for increased vermin activity.	
6.1.4 Planning action	The requirements in this part of the standard were covered in the internal audit N° 2 in 2019. As such, no specific evidence was gathered here.	Not assessed for risk
6.2 Environmental objectives	The requirements in this part of the standard were covered in the internal audit N° 2 in 2019. As such, no specific evidence was gathered here. We noted the following action by DWM on an issue identified at internal audit N° 2 in 2019. 2019 comments = "ISSUE N° 2019-04 = The organisation's demonstration that environmental objectives are consistent with the environmental policy is not obvious. Evidence: R 052 provides no links. 2020 comments = AA has conducted an initial review of the register in question (R052) including the procedure for creating new objectives. Sighted R 052 with new objectives. Includes new pump hose fittings to be compatible with Tasmania Fire Service; new compost monitoring probes to remain in the pile; conduct a trial using data logger of windrow parameters. Sighted results windrow 425 not pasteurising well compared with 452. There is one tab for each windrow in the spreadsheet. The constant improvement now has extra focus, such as relocation.	Negligible risk
Support		
7.1 Resources	The requirements in this part of the standard were scheduled for review at this internal audit in 2020. Determination and provision of resources appears in place. <u>DWM Facility</u> Resources provided include: • New equipment includes Komptech windrow turner [owned by DWM], 380 Komatsu loader [owned by Gradco], and Komptech Nemus 2700 screen [owned by Gradco]. • Relined the leachate pond to give it extra capacity and remove sludge. • For the first time in order to control weeds they used Tasmanian Helicopters to spray herbicide across areas of the site from the air. It worked so well that they will use it again in the future. This was conducted on a weekend outside of working hours. • Reacquired land that was leased to Tasmanian Mushrooms. Need was identified to inspect this and we sighted Compost screening using Komptech Nemus 2700, with operator Max using a wheeled loader to move material around. <u>DWM office</u> Resources provided include: • There is a senior management team, consisting of CEO, Matthew Layton and Mel Pearce • There is an administration team. • Sighted these records relating to Project storage 2 liner: Atarfil Geomembranes information sheet and certificate of conformance for bidim A34R. • Tasmanian Helicopters' invoice N° 5742 on 30/06/2020 for 27/06/20 supply and application of Stinger, Clomac, Pulse and Crucial at 150L/Ha with aircraft VH-UWT. Invoice N° 5717 on	Negligible risk

Requirements of the Standard	Auditor comments on documented reviewed	Conformance signal - risk
	14/06/2020 for fertiliser application on 2/06/2020.	
7.2 Competence	Induction for Max Gibson on 7/9/20 was signed and duly authorised. Vaccination was not required, though it is for most employees. Sighted record of vaccination for Gary Padman showing meningococcal, MMR, Boostrix, and Twinrix [hepatitis A & B].	Negligible risk
7.3 Awareness	DWM Facility Interviewed Max Gibson who was aware of the Gradco machine needing operation under controls and this contribution to an effective EMS. Site induction was again confirmed for a single financial year by sighting record for Max. Viewed site induction video. We noted the following action by DWM on an issue identified at internal audit N° 2 in 2019. ISSUE N° 2019-05 = It is unclear how the organisation ensures that some categories of people inducted at DWM Facility are sufficiently aware of the EMS. Evidence: Awareness for Group A & B has no place to confirm attending EMS Awareness. 2020 comments: Considered N/A as it is not a "one size fits all". We noted the following action by DWM on an issue identified at internal audit N° 2 in 2019. ISSUE N° 2019-06 = 2019 comments: The organisation's contractor Gradco, appears to not have a sufficient system to confirm which of its employees require induction. Evidence: There was no site induction record found for Stephen Walters, a dozer operator on a short-term project at DWM Facility, and he confirmed that he had indeed not been inducted. 2020 comments: M-Files is tracking this. Sighted comment "Investigations are underway for the possibility of a swipe card entry system. Suitable options will be evaluated and this task will be TC'd once the chosen option has been implemented".	Negligible risk
7.4 Communication	P 080 continues as the procedure for communications. DWM Facility • Gary gave verbal feedback that a couple of trial loads of FOGO were inspected and found to contain unacceptably high levels of contaminants. Hence, they were diverted to landfill and no FOGO comes on site at present. DWM Office • Communications on this were assessed at the office – sighted Central Coast Council Infrastructure Resources review report 18-May-2020. Future endeavours at DWM would require additional volumes to make FOGO viable. Could not find record of the assessment of the trial loads. ISSUE N° 2019-07 = 2019 comments: External communication processes on with whom to communicate appear not up to date. Evidence: MFID 31331 [Site Office Contact List - v04.11.16] laminated on display at DWM Facility has people no longer in DWM and others not listed. See the photo. 2020 comments: CTR, Core Task Register, has this to be checked February and August. Documents Check occurred on 03/06/2020 (Late due to COVID-19), a number of documents needed updating in the site office, this was confirmed completed by site Supervisor [SS] later that day.	Negligible risk
7.5 Documented	M-Files continues as the document management programme. This	Negligible risk

Requirements of the Standard	Auditor comments on documented reviewed	Conformance signal - risk
information	enabled information to be readily available and protected. DWM Facility • Sighted DORF Weekly Diary as EMS: WI 043a & WI 043b. These are paper documents completed and filed in folders in Site Manager's office. These contain information related to issues to report, possible impacts [odour], irrigation using leachate, checks, and DORF windrow activities, WI 043b - Sheets from 29 Jul 2019 to 4 Aug 2019 and each week to 4 Nov 2019 to 10 Nov 2019. WI 043a – contains more information with checks of incoming waste spill kits, fuel, pre-start checks and stormwater controls including bunds. • Daily toolbox meeting record is a Gradco owned form used. Folder of these was available for inspection, including day of internal audit. ISSUE N° 2019-08 = 2019 comments: The reliability of documented information necessary for operation of the EMS might benefit from closer scrutiny. Evidence: Gary said he was away 4 Nov 2019 to 10 Nov 2019 and no spot checks were done at the site. However, Daily Toolbox Meeting Record for 6 to 8 Nov 2019 show Gary conducted the meetings. Who should do this for DWM? 2020 comments: Now the Admin Team has a checklist of documents that should be received each Monday or after the end of the Month from site and once received an initial review is conducted to ensure the document is whole and accurate to their knowledge.	
Operation		
8.1 Operational planning and control	DWM Facility Established controls include WI 033: pH Calibration Record Sheet records. The internal auditor wanted to clarify why might be "reading on screen" adjusted by DWM? Matt explained that it is to adjust the slope of the relationship curve, so mid-point is achieved. Observed Kelly Waste Management truck arrival 14:42 hours with GVM of 24.2 tonnes. Reviewed delivery of material on site. Controls start with induction. Booklet exists for site induction & information 2018-2019. Site induction 14-Dec-17 for Z. De Bruyn. Control includes P131 operations of the active landfill cell. Day-to-day control working documents are SWMS. Sighted that for truck drivers on site. Nothing for weeds/pests being brought onto site – may not be an issue because of vigilant weed spray. Control could also include issue of corrective action requests. Example 22-Feb-18 of Veolia truck hydraulic hose break and hydrocarbon spill. CAR DWM1107 of unapproved liquid waste disposal 13-Sep-18. Chemical spray operations use a checklist but not sophisticated SOP that records RH & temperature. The new Komptech Nemus 2700 screen and Komptech Topturn X63 [417049 serial number] machine to turn windrows have controls. Sighted pre-op inspection with option for fault details and covers fluids, external inspection and work area. Sighted maintenance manual. Procedure for managing compost windrows WI 151 has been updated to in corporate Komptech Topturn X63. It has been streamlined to about half of its original size. Windrow need three pasteurising events of 55 degree for three consecutive days. Maximum number of windrows to turn per day is three, in effort to control potential odour emissions and complaints. Preferred moisture range is 50-60%. ISSUE N° 2019-09 = 2019 comments: The organisation could consider clearer definition within the EMS of the type and extent of control or influence that are applied to outsourced processes by DWM at the DWM Facility. 2020 comments: The organisation considers that control or influence is through the induction process that consists of: Site induction Video, Site	Negligible risk

Requirements of the Standard	Auditor comments on documented reviewed	Conformance signal - risk
	Induction form, and signing onto relevant SWMS. Within each induction step, contractors are given EMS awareness in areas relevant to the work they're conducting onsite. SWMS are reviewed by the Site Supervisor and DWM office who can determine to provide further EMS awareness if appropriate, this would typically be for substantial projects/operations onsite or similar. Sighted SWMS for – repair to settlement pond that had environmental risk of spillage of sludge on way to landfill. This has a DWS checklist that includes potential contaminations, nuisances. It was completed 7-Sep-2020. ISSUE N° 2019-10 = 2019 comments: The established operating criteria for spray processes could be improved. Evidence: Gradco use a checklist but not a SOP that can record relative humidity & temperature, which can be used to ensure that environmental requirements are met. 2020 comments: Spraying onsite is only completed by certified personnel, which is now done mainly by air, (in accordance with the Australian Code of Practice for Aerial Spraying) but is sometimes carried out by site staff on the ground as well. Temperature and Humidity are not "tested", before spraying as there isn't currently a means to test humidity onsite but personnel have been able to effectively judge if the weather is suitable for spraying and act accordingly. Sighted TasTAFE Agricultural Chemical Skill Set 17-Jan-2019 for Andrew Maggs.	
8.2 Emergency preparedness	DWM Facility They are investigating replacement of CBA with other masks with particulate filters. Company IPM gave Occupation Hygiene advice recently. An emergency scenario was conducted related to COVID-19 being on site. DWM Office Need was identified to sight records – Two pages report on the scenario of worker arriving on site with symptoms of COVID-19. Refers to WI-46 "Management of COVID-19" issued 7-May-2020. DWM has its own set of documents related to COVID-19. Visitors to the office are required to complete a questionnaire that is processed by the office before entry is granted. A letter on 30-Mar-2020 went out to all organisations servicing the site. M-Files 34339 ID for returning to work 26/05/2020 with all DWM employees indicated as read and acknowledged. Need was identified to sight records – respiratory protection considering 7600 series full face-piece. IPM consulting 27-Oct-2020 email advising of upcoming presentation of their recommendation. ISSUE N° 2019-11 = 2019 comments: The organisation has not provided all relevant information related to emergency preparedness and response. Evidence: At least two SDS were unavailable for at least two chemicals in the shed. 2020 comments: The Hazardous Substances Register (R010) and all SDS's on it have been reviewed, the register and current SDS's have been printed and bound and placed in 3 signed areas onsite, The DORF Container, the Green Shed, and the Site Office. The Monthly Environmental Checklist has been updated to include a reminder for advising DWM of any new hazardous substances used or kept onsite. Sighted Sep-2020 checklist EMS: WI 042 indicating no new chemicals.	Negligible risk
Performance evaluation		
9.1 Monitoring, measurement, analysis and evaluation	DWM Facility It has an online system for viewing water flows. There are two pump stations with N° 2 from landfill and N° 1 from leachate pond. Cromarty maintain the electronic monitoring system. Nutrien [Tas Irrigation] maintain the pumps. The website for this is restricted 192.168.5.5:80988	Moderate risk

Requirements of the Standard	Auditor comments on documented reviewed	Conformance signal - risk
	Sighted the monitoring display indication when N° 1 pump was turned on. The internal auditor asked if there were any metrics on outsourced processes such as amounts of chemicals used by Tasmanian Helicopters. A Tasmanian helicopters chemical application form N° TH 16251 dated 27-Jun-2020 was provided by email two days after the on-site audit. DWM Office For the plantation area where the leachate from the composting facility is applied when only absolutely necessary. There was a soil analysis report 12/06/2018 from SESL Australia. Eight samples identified three [1, 3 & 8] as sodic and recommended application of gypsum to the eight areas at variable rates and a second application to area of sample 1 some six months later [both at 500 g/m2]. There has been a follow up soil test, but results were not sighted. Cromarty maintain the electronic monitoring system. Need was identified to sight records – sighted 10/07/20 induction of engineer, Wade, of Cromarty. Invoice 43320 on 12/11/2020 for replacement sensor on tip of oxygen sensor probe. Invoice 42199 for SCADA software upgrade with six-monthly preventative maintenance. R 035 is calendar for windrow turning. Last complaint with respect to odour and windrow turning was on 27-Jul-2020, indicating effective monitoring for a positive outcome. ISSUE N° 2020-01 = The monitoring, measurement, analysis and evaluation of some outsourced processes might not be sufficient to capture errors that could impact environmental performance. Evidence: Tasmanian helicopters chemical application form N° TH 16251 dated 27-Jun-2020 has errors in total chemical used, with totals equating to 18.0 and not 16.8 hectares treated at the listed application rates for all four chemicals [Stinger, Clomac, Pulse, Crucial], thereby indicating possible recording errors, excessive application or waste.	
9.2 Internal audit programme	The requirements in this part of the standard were covered in the internal audit N° 1 in 2018. As such, no specific evidence was gathered here.	Not assessed for risk
9.3 Management review	The requirements in this part of the standard were covered in the internal audit N° 1 in 2018 and also scheduled for this audit N° 3. The specific focus for evidence to be gathered here was that of management review. DWM Office This was recently completed and the record sighted. Draft minutes 21-Oct-2020 with four people attending. Minutes from 2019 could not be located – was a BSI certification body audit finding. Focused on 6/12/2018 and 21/10/2020 minutes. With respect to the 2020 review we note that it did include: • Status of actions [nil] from previous reviews [item 1]. • Changes in external and internal issues [item 5]. • Achievement of environmental objectives [item 2]. • Environmental performance with respect to corrective and preventative action. See comments below on ISSUE N° 2020-01. • Noted BSI audit June 2020 and internal audit 23/11/2020. • Risk & opportunities – processing of Berry Coir [sighted during field inspection], investigating cell for level 3 contaminated waste, new interested party of Costa [berries]. • Approval 27-Oct-2020 from DPIPWE to Environmental Service and Design for soil from excavation at Burnie Port by Stubbs Construction to be disposed of at DWM, if they approve. This was Level 2 material with elevated zinc and fluoride. • Next meeting is set for September 2021.	Moderate risk

Requirements of the Standard	Auditor comments on documented reviewed	Conformance signal - risk
	ISSUE N° 2020-01 = The management review minutes contain no obvious information on environmental performance trends in monitoring and measuring results, fulfilment of compliance obligations and results of audits. Evidence: Minutes dated 21-Oct-2020 at item 3 are "results of Internal Audits in 2020" yet these do not give results of past audit but indicate future audit and certification body audit is only mentioned as "took place" without any reference to results. There is absolutely no mention of monitoring and measuring results plus fulfilment of compliance obligations. *The organisation could ask how figures were calculated.*	
Improvement		
10.1 to 10.3	The requirements in this part of the standard are scheduled for this internal audit N° 3. During our inspection of the Dulverton Landfill site we noted the following opportunities for improvement that have been acted upon: Shed had a new concrete slab laid in 2019, replacing the earthen floor. DMW considered all 11 internal audit matters identified as "ISSUE N° 2019-01 to 2019-11". DWM Office Documented information of nonconformity and corrective action for two different events were sought, aiming for one for DWM Facility and one for the office or system. Sighted examples from environmental and general - corrective action register. • EMS-681 corrective action ID and DWM1056 on 11-Aug-2020 concerning green algae on top of stormwater pond. ALS Environmental report results sighted and photo showing green colour of pond. Algae deemed not to be risk to health. • EMS-682 corrective action ID and paper record 785 on 17-Aug-2020 concerning crack to brick bund around fuel pod cell due to loader colliding with it. Investigation is in progress with it placed in workplace health & safety corrective action register. Possibility of a double-skinned fuel pod. • EMS-684 corrective action ID and DWM1058 on 4-Sep-2020 concerning resident complaining about influx of flies. Action involved reducing active area of landfill by covering some. R 035 is a calendar showing windrow turning. Last complaint 27-Jul-2020. Site supervisor ceased turning windrows that day in effort to stop dissipation of any steam. There are relatively few corrective actions related to the office.	Negligible risk

Photographic plates

Photo below N^{o} 1 = New equipment at DWM Facility includes the Komptech Nemus 2700 screen [owned by Gradco].

Photo below N^{o} 2 = landfill site continues to have netting installed to control wind-blown litter.

Photo below N^{o} 3 = Pump station at the settlement ponds.

Photo below N^{o} 4 = The leachate pond that was relined to give it extra capacity and remove sludge.

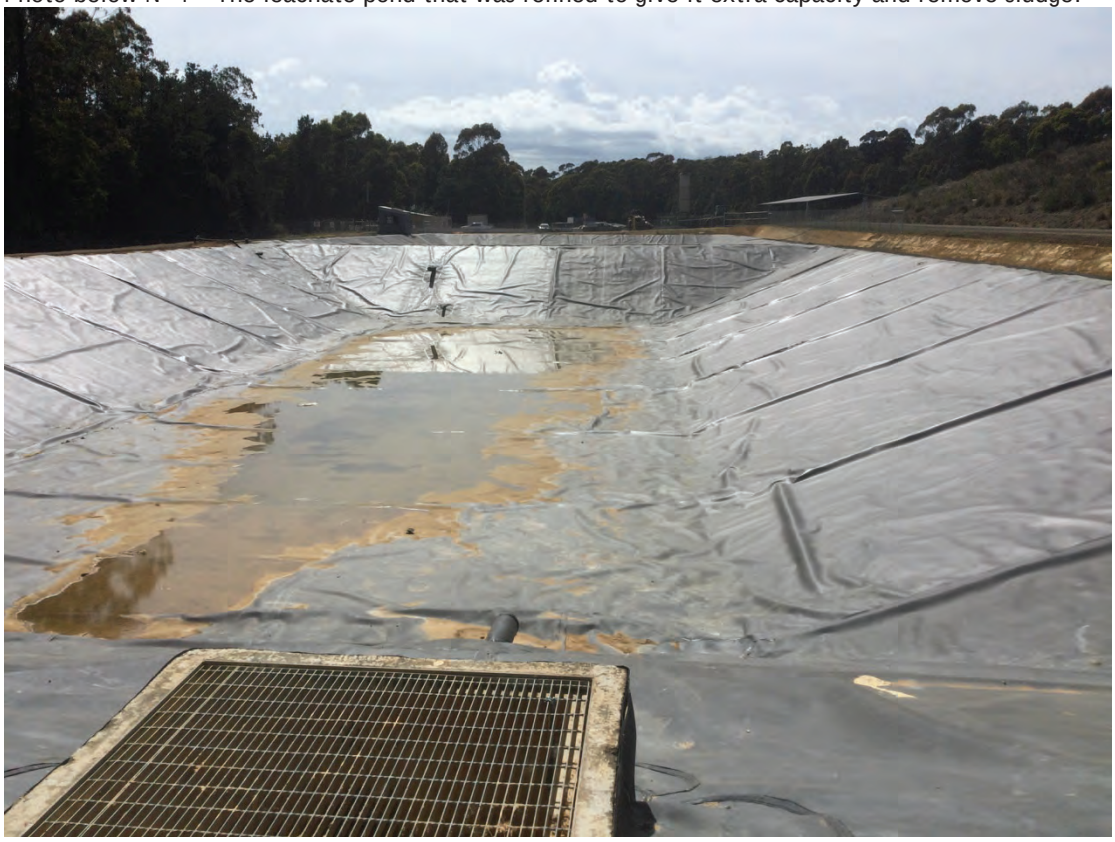

Photo below N^{o} 5 = Water being sprayed on road to lessen dust and associated environmental impacts.

Photo below N^{o} 6 = Unloading material onto the landfill site.

Photo below N^{o} 7 = Close up of the landfill site.

Photo below N^{o} 8 = Windrow N^{o} 4145 of material for composting is a hazard that can pose potential safety risk.

Photo below N^{o} 9 = Composting site area at with the Berry Coir as a possible composting input from new interested party of Costa [berries].

Photo below N^{o} 10 = The 380 Komatsu loader [owned by Gradco] used moving composting material.

Photo below N^{o} 11 = Composting area at site. The Komptech windrow turner [owned by DWM] was bogged an unable to be seen in operation.

Photo below N^{o} 12 = an overview of the landfill site from the road to the composting area.

This place marks the end of the report.

Assessment Report

Dulverton Waste Management

Assessment dates	15/06/2021 to 16/06/2021 (Please refer to Appendix for details)
Assessment Location(s)	Devonport (000), Latrobe (001)
Report Author	Craig Hobbins
Assessment Standard(s)	ISO 14001:2015

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Table of contents

Executive Summary

Based on the results of this audit, it has been determined that Dulverton Waste Management continues to fulfil the standards and audit criteria identified within the audit report and it is deemed that the management system continues to achieve its intended outcomes. The audit objectives have been achieved. A recommendation for re-certification to ISO 14001:2015 is made.

Due to COVID-19 restrictions, this audit was partly conducted remotely using the BSI Information and Communication Technologies Procedure. The remote audit process focused on management system documented information and corresponding system management records. A site inspection of the Devonport office and the Latrobe landfill operations (including composting) was also conducted. The planned audit objectives have been achieved, there were no connectivity issues which affected the audit findings and outcome.

The information and communication technology used to facilitate remote audit included:
• Phone conversation for interviews.
• Email of management system documentation and associated records.

A strong focus on maintaining and improving the environmental management system and waste management processes was evident throughout this assessment, and was demonstrated throughout all aspects of the business and management system that were examined during this assessment. System and waste processing improvements continue to be generated, as detailed within the subsequent areas of this report. Environmental Management system measuring and monitoring activities continue to be conducted in an effective manner.

I would like to thank all involved in this audit for their active participation in the audit.

Changes in the organization since last assessment

There is no significant change of the organization structure and key personnel involved in the audited management system.

No change in relation to the audited organization's activities, products or services covered by the scope of certification was identified.

There was no change to the reference or normative documents which is related to the scope of certification.

NCR summary

There were no outstanding nonconformities to review from previous assessments.

No new nonconformities were identified during the assessment. Enhanced detail relating to the overall assessment findings is contained within subsequent sections of the report.

Assessment objective, scope and criteria

The objective of the assessment was to conduct a re-assessment of the existing certification to ensure the elements of the proposed scope of registration and the requirements of the management standard are effectively addressed by the organisation's management system.

The scope of the assessment is the documented management system with relation to the requirements of ISO 14001:2015 and the defined assessment plan provided in terms of locations and areas of the system and organisation to be assessed.

Criteria:

* ISO 14001:2015.
* Dulverton Waste Management Environmental Management System Environmental Management System Manual 22/5/2019.

Statutory and regulatory requirements

No changes to statutory or regulatory controls specific to waste management processes have occurred since the previous BSI Assessment. Regulatory monitoring controls relating to the monitoring of EPA licence conditions (Landfill 7158/3 and DORF 7852/1) also remain unchanged and are effective.

Records / documented information sighted and confirmed:

* Compliance Register (EMPCA Docs, Landfill EPN and DORF EPN tabs).
* Core Task Register.
* Confirmed in interview with the Environmental Administration Officer and Operations and Project Officer.

Assessment Participants

Name	Position	Opening Meeting	Closing Meeting	Interviewed (processes)
Abbie Allan	Environmental Administration Officer	X	X	X
Mat Greskie	CEO	X	X	X
Matthew Layton	Operations and Project Officer	X	X	X
Miriam Beswick	Project and Administration Manager	X	X	

BSI assessment team

Name	Position
Craig Hobbins	Team Leader

Assessment conclusion and recommendation

The audit objectives have been achieved and the certificate scope remains appropriate. The audit team concludes based on the results of this audit that the organization does fulfil the standards and audit criteria identified within the audit report and it is deemed that the management system continues to achieve its intended outcomes.

RECOMMENDED - The audited organization can be recommended for recertification to the above listed standards, and has been found in general compliance with the audit criteria as stated in the above-mentioned audit plan.

Use of certification documents, mark / logo or report

The use of the BSI certification documents and mark / logo is effectively controlled.

Findings from this assessment

General:

Dulverton Waste Management's Environmental Management System Manual 22/5/2019 and associated controls were used as a reference during this ISO 14001 Re-certification Assessment.

Continued environmental management system implementation and maintenance within Dulverton Waste Management operations (office and landfill) was confirmed through interview with the leadership team and through a review of documented information examined during remote assessment. This consisted of the various Environmental Management System Manual, forms, templates and records. The process confirmed system controls for system documentation access, risk management processes, and system implementation across all facets of the business.

Due to the COVID-19 pandemic event, the audit was partially conducted remotely using the BSI Information and Communication Technologies Procedure. The planned audit objectives have been achieved, and there were no connectivity issues which adversely affected the audit. The information and communication technology used to facilitate remote audit included:

* Telephone; and

* Email was used for the purpose of sharing relevant information and documentation associated with the audit.

Risk management policies and procedures validated during the previous BSI assessment continue to implemented. Coronavirus management plans are implemented. Isolation, separation and cleaning measures are established and are detailed within the management plans. The measures are being monitored by the Management Team.

Processes and documentation in place are sound and meet requirements.

Documented information sighted:

- COVID-19 management plans and controls.
- Dulverton Waste Management's Environmental Management System Manual 22/5/2019
- Confirmed in interview with the Leadership Team.
-

Certification Scope.

The scope of certification for Dulverton Waste Management was examined. The scope of certification wording is to be amended to better reflect the business structure and the methodologies used to manage the landfill operations. Specifically, the scope of certification is to be amended to reflect the fact that landfill operations are outsources to a third-party contractor. The scope is confirmed as follows:

"For the management of a waste management facility comprising landfill and compost production operations".

Policy:

The environmental management policy validated at the previous BSI assessment was examined. The policy is made available as documented information, and is made available to interested parties (workers and interested parties) through display and through placement on the company's web-site. The policy contain a commitment to establishing and objective and target frameworks and legal compliance. The policy has been reviewed and approved by the CEO. Compliance with the requirements of the standards is sound.

Records / documented information sighted:

* Environmental Policy (12/8/2020)

* Confirmed in interview with the Environmental Administration Officer.

Changes since the Previous BSI Assessment, System and Business Improvements:

Changes and improvements tabled and examined during this assessment include:

- A new Cloud based IT system is now in place. All environmental management related records are now stored within this system.
- A compost facility upgrade project has commenced, focusing on improving composting processing and reducing risks associated with compost production. The design planning phase has commenced. The objective is to conduct composting processes within a covered area, enable capture of emission bi-products that can be re-used.
- Performance monitoring processes associated with compost production have been improved.
- A new site leachate system is currently in the design stages.
- Leachate storage pits have been recently relined to improve retention.
- A new electronic message board was installed on site, improving site instructions and notifications for contractor's personnel and waste delivery drivers.
- Odour complaints for residences adjacent to the site have decreased significantly.

Context of the Organisation

Dulverton Waste Management has documented information describing context and scope of the system contained within the Environmental Management System Manual as well as procedure MFID 813713. The system defines the internal and external interested parties who may impact or be impacted by the landfill operations and management system processes. Interested parties have been determined as:

- Owner Councils and their representatives.
- The Board of Directors.
- Regulatory bodies (EPA).
- The community and neighbours.

- Dulverton management and employees.
- Sub-contractors.

Consideration of regulatory requirements and stakeholder are considered and where necessary controls have been implemented.

Dulverton Waste Management has process instructions and documented information in place that respond to ISO 14001 requirements. Processes in place are sound and meet requirements.

Documented information sighted:

- Environmental Management System Manual sections 1 Purpose and # Scope of the EMS.
- MFID 813713.
- Confirmed in interview with the Environmental Administration Officer.

Leadership - 5:

The CEO and Board continue to show commitment towards the ongoing implementation and improvement of the environmental management system and associated processes, as demonstrated during the audit process. Examples include:

- Taking accountability for the effectiveness of the management system.
- Active participation in the ISO 14001 certification assessment.
- Reviewing and endorsing environmental policy statements.
- The development of and input into the risk management framework.
- Participation in the development and implementation of the objective and target plans, and ensuring that set objectives are compatible with the strategic direction of the landfill and composting operations.
- Promoting continual improvement as evidenced in procedure and process improvements cited throughout this audit report.
- The monitoring of resources required for all landfill and composting operations, environmental management system maintenance and monitoring,
- Ensuring process and system effectiveness.
- Ensuring the system has been developed and implemented around legislation / regulatory requirements.
- Training workers on their responsibilities and authorities.
- Participating in management review and internal auditing activities.

Management and personnel responsibility and authority details are detailed throughout the management system documented information.

All workers are encouraged and tasked with requirements related to reporting, communication as well as participating in environmental management related activities, as detailed in the Support section of this report.

Leadership requirements of the standards were demonstrated throughout this assessment, as confirmed in interview with the CEO and Leadership Team. Compliance with the requirements of the Standard is sound.

Planning - 6:

Dulverton Waste Management has developed, implemented and maintains mature risk management processes that encompass all core business activities, environmental controls, interested parties and

regulatory requirements. Standardised risk assessment models and processes are used to analyse risks and opportunities.

Risk and opportunity assessment processes utilise models which include probability and consequence assessments and require the establishment of risk treatment plans. Management system processes, controls and all related core business activities have been established in consideration of risks and opportunities.

The Environmental Management System Aspects and Impacts Register was sighted. This Register includes records of risk assessments conducted for each identified environmental aspect. The Register includes risk assessment records for the following aspects:

- Landfill specific;
  - general landfill operations,
  - gas and emergency,
  - leachate generation,
  - permanent regeneration of batter banks around cell,
  - biosecurity risk material,
  - acid sulphate soil.
- DORF specific;
  - liquid waste trials for compost,
  - composting organic waste,
  - leachate generation,
  - composting organic waste,
  - windrow turner operation and irrigation,
  - DOT project.
- Whole of site;
  - delivery of waste to site (landfill and DORF)'
  - depth measuring of underground bores,
  - general site activities,
  - work permit,
  - weighbridge generator,
  - pest animals on site,
  - extreme weather events.
- Projects;
  - testing thickness of cell capping,
  - berry coir – DORF disposal,
  - cell B1 north capping.
  - completed projects.

The Register details the relevant activity, environmental aspect, environmental impact, legal requirements, risk assessment detail, control measure and residual risk rating.

Processes for setting and achieving environmental objectives and targets are detailed in R052 Environmental Objectives Register, which is used to record and track objectives and targets. This register details the set objective, achievement strategy, outcome, responsibility detail and status.

Planning processes are monitored through the Management Review and Internal Audit processes. Achievement of objectives is included as an agenda item in the management review. Evidence was confirmed in sampled management review records (also refer to Section 9 of this report).

Processes in place are sound and meet all requirements of the standards.

Documented information sighted:

- Environmental Management System Manual section 5 Planning.
- Environmental Management System Aspects and Impacts Register.
- Environmental Objectives Register.
- Confirmed in interview with the Environmental Administration Officer.

Support – 7:

The internal and external resources required to implement and execute risk and process management controls outlined within the environmental management system are identified. The management team monitor and ensure that the appropriate allocation of resources required for system maintenance and site operation management are implemented. Documentation such as Procedures, Work Instructions and Position Descriptions detail responsibility and authority details relevant to the process being described.

All personnel are required to undertake induction training prior to their commencement of duties. Induction training requirements are developed based on factors such as tasks to be undertaken and hazards and risks associated with the workers' duties. An Induction Booklet and Site Induction Acknowledgement Form have been developed and implemented, which outlines and confirms induction training instructions, management system requirements and competency confirmation details. Worker, witness and manager sign off are included.

Competency requirements with respect to environmental management and worker qualifications have been established. Training for personnel is conducted for specific duties, examined against documents such as the Work Instructions. Competency monitoring (Performance Revie) processes are conducted by management (supervisors etc.) annually. An Instruction Competency Matrix is maintained, detailing competency levels assessed again specified criteria and / or management system controls (Work Instructions).

Management system documentation clearly lists the document name, document control mechanisms (document title and identification number, issue date) as well as approval detail. Processes for documentation development, approval, implementation, amendment and archiving are in place. The processes consider regulatory requirements. The management system is made available electronically to all staff, and accessed through the company's shared server (M drive). Procedure P090 Records Management details document control mechanisms, as well as record retention times and storage conditions.

Internal and external communication processes are developed and implemented in accordance with stakeholder requirements (internal and external) and regulatory requirements. Dulverton's web-site contains information relative to the environmental management system and certification. Internal communication includes activities such as meetings and notifications. Ongoing communication processes exist with the landfill operation sub-contractor, including joint meetings and site inspections.

The environment for the operations of Dulverton Waste Management processes is managed and monitored through WHS related functions. Several processes are in place which are utilised to examine WHS related system and controls, which include Internal Audits, DORF Weekly Diary checks, Site Supervisor Weekly Diary checks (landfill), and the Monthly Environmental Checklist process.

Knowledge critical and transfer processes are in place, encompassing environmental management controls and corporate requirements. Succession planning is conducted when and where required.

Inspection and monitoring equipment used for environmental management / checking are controlled. Equipment is tested and / or calibration as per the manufacturer's instructions and applicable Work

Instruction. Calibration and inspection certificates are provided and maintained. Equipment is traceable back to the calibration record through the serial number. Records are maintained.

Documented information sighted:

- Environmental Management System Manual section 6 Support.
- Instructions Competency Matrix as at 9/6/2021.
- Site Induction Acknowledgement Form 17/8/2020.
- DORF Weekly Diary check record 6-6-21.
- Site Supervisor Weekly Diary check record 6-6-21.
- Monthly Environmental Checklist record 31-5-21.
- Procedure P090 Records Management.
- R130 Compliance Register (equipment calibration / checking schedule and detail).
- Confirmed in interview with the Operations and Project Officer and Environmental Administration Officer.

Operation - 8:

Dulverton Waste Management has developed and implemented a series of documents outlining standardised environmental management controls, relevant to core business activities conducted under the scope of certification.

Operational planning and control

Waste management and compost production planning processes were examined. Planning processes are conducted in consideration of factors such as regulatory requirements (including EPA licencing), internal and external resource needs, waste streams, site management requirements and inspection and testing requirements. A life-cycle perspective for waste management is considered, particularly within the compost production processes. Factors considered include:

- contamination,
- suitability of waste product to be disposed of in the landfill or composted,
- future and existing site management requirements and waste / bi-product utilisation (example: methane extraction improvements).

Emergency preparedness and response

Emergency management procedures and controls are in place, relevant to office areas and the landfill site. Emergency management controls such as fire fighting equipment, first aid equipment and spill mitigation infrastructure and equipment. An Emergency Management Plan is in place, outlining testing processes and control measures. Documented information in the form of Work Instructions are in place for emergency scenarios where the potential to occur is high due to site operations (example: fire in the landfill).

Processes in place are sound and meet requirements, the following records / processes were validated:

- Environmental Management System Manual section 8 Operation.
- Procedure P135 Litter Fence Installing and Relocating.
- Work Instruction WI151 Composting Process and Monitoring Requirements.
- Work Instruction WI153 Sampling at DORF.
- Monthly Environmental Checklist record 31-5-21 (emergency control check).
- Site management plans (cells, access roads, leachate dams etc.).

- Emergency Management Plan (draft under review updated to include new emergency control equipment and processes).
- Work Instruction WI 056 Fire on Site.
- Confirmed in interview with the Operations and Project Officer and Environmental Administration Officer.

Performance Evaluation - 9:

Process instructions are in place for checking conformity of environmental controls, environmental objectives and targets and performance measures.

External providers are approved and performance assessed on a regular basis to mitigate the risk of non-conforming inputs. Any statutory and regulatory requirements relevant to external providers are checked by the management team on a regular basis.

Reports on environmental related incidents and non-conformities, resourcing issues, system and process changes, internal audit outcomes, corrective actions and improvement are inputs to the management review meetings which inform the outputs and action plans agreed by the management team. The effectiveness of corrective actions is also assessed.

Environmental management performance data is collated by the Environmental Administration Office and tabled to senior management through activities such as management review processes.

Internal auditing activities have been conducted in accordance with internal audit planning documents (sighted Internal Audit Plan Dulverton 19/10/2020). An Opportunity for Improvement in relation to audit planning has been raised as detailed below.

Finding Reference	2069530-202106-I1	**Certificate Reference**	EMS 698108
Certificate Standard	ISO 14001:2015	**Clause**	
Location reference	0047695802-000		
Category	Opportunity for Improvement		
Area/Process:	Internal Auditing		
Details	Internal audit planning documents could outline more detail regarding: * Internal auditing activities in place. * Processes / system audits that are programmed on risk and the importance of the activity being assessed.		

Compliance to auditing procedures is evident, with audits conducted in manner consistent with the internal auditing procedure (P140 Internal Audit), internal auditing plans and the Standard. Records from the Internal Audit conducted on the 23rd of November were sighted. This audit was conducted by an external consultant, thus providing independence in the audit process.

Management review processes encompass all requirements of the Standards. Records from the Management Review meeting conducted on the 21st of October 2020 demonstrate a sound and consistent management review processes in accordance with the requirements of the Standard. Agenda Items include:

- Review of previous minutes.
- Environmental Objectives & Targets Register.

- Internal Audit Review.
- Environmental Performance of DWM.
- Changing Circumstances.
- Status of Corrective and Preventive Action.
- Recommendations.

These are the inputs to the management meeting which inform the outputs and action plans agreed by top management.

Site environmental monitoring processes are conducted at various levels in accordance with regulatory controls (EPA licences), Dulverton's environmental management system requirements and the Standard. The following measurement and monitoring processes and records were examined and deemed sound.

- DORF Weekly Diary check record 6-6-21.
- Site Supervisor Weekly Diary check record 6-6-21.
- Monthly Environmental Checklist record 31-5-21.
- R130 Compliance Register.
- Work Instruction WI 153 Sampling at DORF.
- Work Instruction WI151 Composting Process and Monitoring Requirements.

Processes in place and meet requirements, as confirmed in interview with the Engineering Manager.

Improvement - 10:

Process instructions include the improvement of waste management services, resources and correction and preventative strategies, which address the requirements of clause 10. Dulverton Waste Management record corrective actions as a result of environmental management incidents, non-conformities and complaints. Procedures for corrective action activities include an examination of root cause issues in order to ensure that actions taken eliminate the cause. Root cause analysis process are conducted.

Records are completed dependant on the nature and risk of the non-conformance or incident, and include detail on root cause and corrective action measures to be taken. Follow up detail and corrective action solutions are detailed. Details on actions taken are reviewed during management review meeting processes. Corrective actions are implemented to mitigate against the risk of a recurrence of an issue and the management of any associated identified risks.

Processes in place are sound and meet requirements, the following records were sighted:

* Environmental Management System Manual section 9 Improvement.

* Environment & General – Corrective Action Register (detail on open issues, closed issues and issues raised during internal audits).

Records and processes relating to any complaint about the client that has been referred to BSI:

No complaints regarding Dulverton Waste Management are known to have been directed to BSI by customers or stakeholders.

Next visit objectives, scope and criteria

The objective of the assessment is to conduct a surveillance assessment and look for positive evidence to ensure the elements of the scope of certification and the requirements of the management standard are effectively addressed by the organisation's management system and that the system is demonstrating the ability to support the achievement of statutory, regulatory and contractual requirements and the organisations specified objectives, as applicable with regard to the scope of the management standard, and to confirm the on-going achievement and applicability of the forward strategic plan.

The scope of the assessment is the documented management system with relation to the requirements of ISO 9001:2015 and the defined assessment plan provided in terms of locations and areas of the system and organisation to be assessed.

Criteria:
* ISO 14001:2015.
* Dulverton Waste Management Environmental Management System Manual (current version).

Please note that BSI reserves the right to apply a charge equivalent to the full daily rate for cancellation of the visit by the organisation within 30 days of an agreed visit date.

Next Visit Plan

TBA.

Appendix: Your certification structure & ongoing assessment programme

Scope of Certification

EMS 698108 (ISO 14001:2015)

For the management of a waste management facility comprising landfill and compost production operations.

Assessed location(s)

Devonport / EMS 698108 (ISO 14001:2015)

Location reference	**0047695802-000**
Address	Dulverton Waste Management Dulverton Landfill Level 1, 17 Fenton Way Devonport Tasmania 7310 Australia
Visit type	Re-certification Audit (RA Opt 2)
Assessment reference	3197791
Assessment dates	15/06/2021
Deviation from Audit Plan	No
Total number of Employees	7
Effective number of Employees	6
Scope of activities at the site	For the management of a waste management facility comprising landfill and compost production operations.
Assessment duration	1 day(s)

Latrobe / EMS 698108 (ISO 14001:2015)

Location reference	**0047695802-001**
Address	Dulverton Waste Management 145 Dawson Siding Road Latrobe Tasmania 7307 Australia
Visit type	Re-certification Audit (RA Opt 2)
Assessment reference	3299134
Assessment dates	16/06/2021
Deviation from Audit Plan	No
Total number of Employees	7
Effective number of Employees	6
Scope of activities at the site	For the management of a waste management facility comprising landfill and compost production operations.
Assessment duration	0.5 day(s)

Certification assessment program

Certificate Number - EMS 698108
Location reference - 0047695802-000

		Audit1	Audit2	Audit3
Business area/Location	**Date (mm/yy):**	05/21	05/22	05/23
	Duration (days):	1	1	1
Scope and Policy		X	X	X
Organisational context		X		X
Leadership and Commitment		X	X	X
Management System Support		X		X
Planning and Resources		X	X	
Human Resource Management			X	X
Control of Documents and Records		X		
Objectives / Aspects /Performance Monitoring & Measurement		X	X	X
Management Review		X	X	X
Internal Audits		X	X	X
Actions / Non-Conformity / Incidents / Complaints		X	X	X
Risk Management / Prevention		X	X	X
Legal and Other Requirements		X	X	X
Improvement		X	X	X
Operational Control		X	X	X

Mandatory requirements – re-certification.

Review of assessment finding regarding conformity, effectiveness and relevance of the management system:

The establishment and tracking of appropriate environmental objectives and targets is evident. Progress towards the achievement of the objective is generally being met with sound and strong improvements made over the past three years. Identification of strategic risks and opportunities has been documented and programmed for effective monitoring. The objective and target framework is positive, and it is foreseen that improvement to the management system, controls and associated waste management processes will continue.

Management system strategy and objectives:

The environmental management system is applied as the principle tool for ensuring process management and improvement, in line with the statements of commitment in policies, as well as in

compliance with relevant statutory and legal requirements. Objectives in respect to environmental impact reductions and site improvements as well as continuous improvement are generally achieved.

Review of progress in relation to the organisation's objectives:

The management system is applied as the principle tool for ensuring environmental management and improvement, in line with the statements of commitment in policies, as well as in compliance with relevant statutory and legal requirements. Objectives in respect to environmental impact reductions, infrastructure and site control improvements, as well as continuous improvement are generally achieved as detailed in this report.

Review of assessment progress and the re-certification plan:

The recertification plan is confirmed based on the consistent nature of Dulverton Waste Management's business and operations, personnel levels, environmental risks and the scope of certification. No changes to continuing assessment programs or audit durations are required.

BSI Client Management Impartiality and Surveillance Strategy:

There are no evident conflicts of interest which would affect impartiality of the audit team. Auditor competency requirements are in place.

Continue with the current Total assessment days / cycle.

Yes.

Expected outcomes for accredited certification.

What accredited management system certification means?

To achieve an organization's objectives related to the Expected Outcomes intended by the management systems standard, the accredited management system certification is expected to provide confidence that the organization has a management system that conforms to the applicable requirements of the specific ISO standard.

In particular, it is to be expected that the organization

- has a system which is appropriate for its organizational context and certification scope, a defined policy appropriate for the intent of the specific management system standard and to the nature, scale and impacts of its activities, products and services over their lifecycles, is addressing risks and opportunities associated with its context and objectives;
- analyses and understands customer needs and expectations, as well as the relevant statutory and regulatory requirements related to its products, processes and services;
- ensures that product, process and service characteristics have been specified in order to meet customer and applicable statutory/regulatory requirements;
- has determined and is managing the processes needed to achieve the Expected Outcomes intended by the management system standard;
- has ensured the availability of resources necessary to support the operation and monitoring of these products, processes and services;
- monitors and controls the defined product process and service characteristics;
- aims to prevent nonconformities, and has systematic improvement processes in place including the addressing of complaints from interested parties;
- has implemented an effective internal audit and management review process;
- is monitoring, measuring, analysing, evaluating and improving the effectiveness of its management

system and has implemented processes for communicating internally, as well as responding to and communicating with interested external parties.

What accredited management systems certification does not mean?

It is important to recognize that management system standards define requirements for an organization's management system, and not the specific performance criteria that are to be achieved (such as product or service standards, environmental performance criteria etc).

Accredited management systems certification should provide confidence in the organization's ability to meet its objectives related to the intent of the management system standard. A management systems audit is not a full legal compliance audit, and does not necessarily ensure ethical behaviour or that the organization will always achieve 100% conformity and legal compliance, though this should of course be a permanent goal.

Within its scope of certification, accredited management systems certification does not imply or ensure, for example:
• that the organization is providing a superior product and service, or
• that the organization's product and service itself is certified as meeting the requirements of an ISO (or any other) standard or specification.

Definitions of findings:

Non-conformity:

Non-fulfilment of a requirement.

Major nonconformity:

Nonconformity that affects the capability of the management system to achieve the intended results. Nonconformities could be classified as major in the following circumstances:
- If there is a significant doubt that effective process control is in place, or that products or services will meet specified requirements;
- A number of minor nonconformities associated with the same requirement or issue could demonstrate a systemic failure and thus constitute a major nonconformity.

Minor nonconformity:

Nonconformity that does not affect the capability of the management system to achieve the intended results.

Opportunity for improvement:

It is a statement of fact made by an assessor during an assessment, and substantiated by objective evidence, referring to a weakness or potential deficiency in a management system which if not improved may lead to nonconformity in the future. We may provide generic information about industrial best practices but no specific solution shall be provided as a part of an opportunity for improvement.

Observation:

It is ONLY applicable for those schemes which prohibit the certification body to issue an opportunity for improvement.

It is a statement of fact made by the assessor referring to a weakness or potential deficiency in a management system which, if not improved, may lead to a nonconformity in the future.

How to contact BSI

Visit the BSI Connect Portal, our web-based self-service tool to access all your BSI assessment and testing data at a time that's convenient to you. View future audit schedules, submit your corrective action plans and download your reports and Mark of Trust logos to promote your achievement. Plus, you can benchmark your performance using our dashboards to help with your continual improvement journey.

Should you wish to speak with BSI in relation to your certification, please contact your local BSI office – contact details available from the BSI website:
https://www.bsigroup.com/en-AU/contact-us/

Notes

This report and related documents are prepared for and only for BSI's client and for no other purpose. As such, BSI does not accept or assume any responsibility (legal or otherwise) or accept any liability for or in connection with any other purpose for which the Report may be used, or to any other person to whom the Report is shown or in to whose hands it may come, and no other persons shall be entitled to rely on the Report. If you wish to distribute copies of this report external to your organisation, then all pages must be included.

BSI, its staff and agents shall keep confidential all information relating to your organisation and shall not disclose any such information to any third party, except that in the public domain or required by law or relevant accreditation bodies. BSI staff, agents and accreditation bodies have signed individual confidentiality undertakings and will only receive confidential information on a 'need to know' basis.

This audit was conducted through document reviews, interviews and observation of activities. The audit method used was based on sampling the organization's activities and it was aimed to evaluate the fulfilment of the audited requirements of the relevant management system standard or other normative document and confirm the conformity and effectiveness of the management system and its continued relevance and applicability for the scope of certification.

As this audit was based on a sample of the organization's activities, the findings reported do not imply to include all issues within the system.

Regulatory compliance

BSI requires to be informed of all relevant regulatory non-compliance or incidents that require notification to any regulatory authority. Acceptance of this report by the client signifies that all such issues have been disclosed as part of the assessment process and agreement that any such non-compliance or incidents occurring after this visit will be notified to BSI as soon as practical after the event.

AS/NZS ISO 14001: 2016 Internal Audit

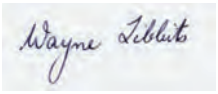
Client: Dulverton Waste Management Pty Ltd

Date of this internal audit: Wednesday 8th September 2021

Date this report finalised and issued: Friday 17th September 2021

Date report modified to clarify three points: Sat 16th October 2021

Name of Auditor: Wayne Tibbits

Signature of Auditor: 

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Executive summary

- Throughout this report Dulverton Waste Management may be referred to as DWM or the organisation.
- This report relates to information gathered during a scheduled, planned and contracted internal audit during a visit in 2021 to the two sites of Dulverton Waste Management, namely the organisation's head office located at Level 1, 17 Fenton Way, DEVONPORT TAS 7310, and the Landfill & Organics Facility located at 145 Dawsons Siding Road, LATROBE TAS 7307.
- The Environmental Administration Officer, with whom the internal audit had been planned, was unable to be at the audit due to illness. The Projects and Administration Manager and CEO more than capably stepped in to be available for the internal auditor and the audit process.
- Some photos as a form of evidence were taken and are appended in this report.
- The scope and focus of this has been to gather objective evidence to determine how the environmental management system conforms to the organisation's own requirements, those of the 14001 standard's requirements, and is effectively implemented and maintained.
- This is internal audit N°4. It follows internal audits N° 1, 2 & 3 conducted in October 2018, November 2019 and November 2020.
- This internal audit gathered evidence across the full set of ISO14001 requirements as per the planned audit scope, details of which were given in an audit plan issued 31st August 2021.
- This report suggests that Dulverton Waste Management has many parts of its system that clearly conform to the standard. In fact, several parts of the environmental management system processes and systems of worthy of special note as sound evidence of solid conformance and improved suitability, adequacy and effectiveness. These are as follows:
    - Competence is supported by an integration of staff and external providers, including back up providers so that competent resources are readily available [example, Palmers Plumbing for irrigation/plumbing works after Irrigation Tas].
    - Its EMS Awareness Presentation Video with its audio is comprehensive, clear and overall, very well done.
    - Several improvements to its whole of business management have related benefits to its environmental management system. With every internal audit there have been tweaks, adjustments and changes in its system. At this internal audit we note these: filtration system on leachate pump, tipping plate design, DOT proposal, concrete bases of litter retention poles, berry coir processing for composting, project preliminary phase of water pipeline, LED sign at entrance.
    - The Dulverton Organics Transformation Project.
- Four areas of low risk exposure were also identified [see below]. These really are opportunities for improvement. They are identified by ISSUE N° 2021-01 to 2021-04.
- Nothing was identified to be at potential significant risk for conformance.
- Hence, the system appears robust enough to be capable of meeting that required of ongoing audits of a certification body, provided systems are being properly implemented and maintained by both the organisation and Gradco.

Overall plan for all internal audits

The plan for this audit needs to be considered in light of the original proposal provided to DWM on 30th May 2018. This proposal was a sequence of audits covering three years that included four separate internal audits, each as one day on site. The plan aimed to sample a range of seasons and times of the day at the Landfill & Organics Facility. As time went by, adjustments were required to the seasonality in the original proposal.

- The first audit, N° 1, was conducted as planned in October 2018.
- The next audit, N° 2, was planned for August 2019. As the Environmental Officer had left the organisation in January 2019, and their role was covered by two people, Matthew and Abbie, this necessitated a delay of the second audit, which was conducted in November 2019.
- The next audit, N° 3, was planned for March 2020 with a fourth and final audit in November 2020. In late February 2020, DWM chose to delay N° 3 to August 2020 and postpone the final audit until 2021. Plans for 2020 were impacted by COVID-19 from early in that year. A week out from the audit, DWM requested a further delay of audit N° 3 to November. This was accommodated, with a new date set and achieved on Monday 23rd November 2020.
- This remaining audit, N° 4, was consequently rescheduled from May to September 2021.

Audit № 4 scope

The scope had components that were:

- Off-site as:
- This was done after the day spent on-site, and was to assist finalising the report.
- The Projects and Administration Manager was asked to and did provide electronically several pieces of documented information. The Environmental Administration Officer also provide electronically some documented information. Due to illness, she was unable to be at the audit.
-
- On site as:
- One full day that included the office as well as Landfill & Organics Facility at Dawson Siding Road.
- Commenced this component of the audit at 08:30 hours.
- Started at the office.
- After a period of 4 hours at the office, the internal audit moved to the Landfill & Organics Facility to continue the audit on the active operational site, before returning to the office.
- Concluded the audit by 16:30 hours, with a closing meeting.

- Criteria
- Assess the ISO 14001 system of Dulverton Waste Management with respect to: How it meets the selected subset of ISO requirements?
- Assess the ISO 14001 system of Dulverton Waste Management with respect to: How well it is implemented and kept in a maintained or improving position?
- All of ISO14001 requirements were selected for sampling. There was some emphasis given to placing greater focus on areas of higher risk.

- Audit methodology
- It used methods that included: observation of work practices, interviews with people and assessment of system components including documented information.
- To present internal audit results on the performance of the environmental management system to meeting the requirements of this standard, in a report using a colour coding, as done for the previous two audits. This colour coding not only gives an additional visual portrayal of the system effectiveness but also covers the full range from effective and noteworthy through stable, partially ineffective to not conforming.

Performance indicators

Please note: Overall auditor's comments that are general evidence in nature are in blue colour font. Evaluated conformance is placed into one of three colour-coded categories. Highlighted traffic light signal colours used are:

Green = No matter to address conformance is identified. So, this is a pass and "green light" towards maintaining certification. Conformance in some cases may be commendable. This is labelled as "Negligible risk".	Orange = A matter to consider for improvement or address or confirm conformance is identified. DWM should take note and act, as this is an "amber light" on road to certification. This is labelled as "Low risk" or "Moderate risk".	Red = Potentially a more serious conformance issue is identified. DWM should give this priority focus, as this is a "red light" on the road of certification. This is labelled as "Significant risk". No part of the system was considered to be in this category.

Specific comments with more detail on matters that are labelled as "moderate risk" are given in orange and sequentially numbered (Issue N° Year- consecutive number, such as 2021-01).

No additional comments are included with suggested means by which the matters could be addressed to mitigate risk or other ways to improve the system. These would normally be shown as blue italics font.

Comments in relations to conformance with the standard.

The table below reports on analysis of assessed evidence at Dulverton Waste Management relating to their system in reference to requirements in AS/NZS ISO 14001.

Requirements of the Standard	Auditor comments on documented reviewed	Conformance signal – risk
Context of the organisation		
4.1 to 4.4 Context of the organisation	DWM has determined external and internal issues relevant issues to its purpose and ability to achieve anticipated outcomes of its EMS. It has done so through its understanding of the needs and expectations of interested parties, plus a clear determination of its EMS scope. For instance, interested parties' needs and expectations are understood through: o There being regular interaction with the owner representatives [four Councils or Local Government Areas] as part of the Board meetings and this interaction process. Feedback from the CEO is that all four owner representatives have been very positive on the status of the EMS of DWM. They have a balance of fresh faces and experience. o Local residents have been contacted through various communications. Feedback that this has been very well received. Sighted DOT Project Update September 2021, Council letter September 2021. Reference to epa.tas.gov.au/working-together/public-consultations o Engagement has happened with politicians across all tiers of Government and across political parties. Worked with local MHR, Hon. Gavin Pearce, and will be meeting soon with Senator Dunham. Determination of the boundaries and applicability of the EMS includes: o Compliance obligations are understood and considered – Notice of Intent has been given to EPA Tasmania for the Dulverton Organics Transformation Project [DOT]. Deadline for submission is soon, including noise modelling. o Activities are addressed in an environmental effects report rather than environmental impacts statement as the proposed DOT development is a type 2B project for DORF [Dulverton Organics Recycling Facility]. o The external audit went well with only one item found related to internal audits.	Negligible risk
Leadership		
5.1 to 5.3 Leadership	The organisation is small in terms of FTE employees [>10]. Nonetheless, demonstrated leadership and commitment to the EMS was evident. o The CEO, Matt showed his leadership and commitment by being involved most of the day with the internal audit. o There is an appointed Board with a skill set that ranges across financial [Ken Clarke], engineering [Jon's background], and strategic development with risk understanding [Cameron]. o They have ensured that the environmental policy is contextually compatible – see next paragraph. The environmental policy has not required any specific recent review and is due for review in 2024. It commits to continual improvement, particularly with its point on reduction of waste streams to landfill. Responsibilities and authorities for roles appeared clearly assigned and well communicated. Again, the internal audit emphasises that this organisation is small in terms of FTE employees, where the internal auditor's direct interaction during the audit was with only four [Mat, Matthew, Miriam and Ashlee]. All knew, accepted and worked to fulfill their responsibilities. We note that with a member of the team being on maternity leave, top management several months ago appointed Miriam Beswick, to cover this gap. Miriam is Projects and Administration Manager, being there full time, 08:30 to 16:30 hours. Abbie Allan is the Environmental Administration Officer who has key EMS responsibility and coordinated preparations with the internal auditor. Due to illness, Abbie was unable to be present during the internal audit, yet followed up the next day by providing additional audit evidence.	Negligible risk
Planning		

Requirements of the Standard	Auditor comments on documented reviewed	Conformance signal – risk
6.1.1 General	The organisation has process in place to address environmental aspects, compliance obligations and planning. See 6.1.2 to 6.1.4 below.	Negligible risk
6.1.2 Environmental aspects	DWM has a set of environmental aspects and impacts, under its control and influence. o Business Risk Register has the DOT Project entered, rated and controls identified. o The DWM A& I register has at D5 the DOT Project entered [DOT01 to DOT09] and cross referenced to Business Risk Register. EPA approval is noted a DOT08 with risk rated 2B = 21 and reduced to 3C = 13 by extensive consultation. o Life cycle perspective considers composting. Selling compost is largely immaterial to financial benefit of the organisation, with cost charged for inputs the most critical to viability of this process.	Negligible risk
6.1.3 Compliance obligations	The organisation has determined its compliance obligations and accounts for them in its EMS. For instance: o DWM liaises with DPIPWE as needed with respect to Biosecurity. o The CEO explained that next month legislation is to go to State Parliament for $20/tonne levy for waste to landfill, then increase by another $20 after 2 years and again after 4 years. This will be the *Waste and Resource Recovery Bill*. o The new DOT will be a much better resource for quality control with respect to Biosecurity, which is one of the compliance obligations. o CWDA Controlled Waste Delivery Advice is a paper form is a DWM form as Form WI 010c. This is required for compliance.	Negligible risk
6.1.4 Planning action	The organisation has plans in place to take action as follows. o Sighted 3D model of the proposed new site of DOT development. This is subject to EPA approval, a compliance obligation. This includes processing of FOGO, removal of waste, recipe control [balance C & N fractions] with dosing, several [nine] composting tunnels [turn after 14 days then compost another 14 days], scrubber to remove environmental impact of odour [NH_4], screen & store finished compost. All will be under cover as this assists compost to be at 32% moisture content and then can sell it by weight. Scales are on the processing line. o Existing windrow machine will be traded to supplier of new facility – this ticks the boxes in terms of LCA. o Timeframe = pour concrete March 2022 and commission within 12 months. EOI, then early contractor engagement then RFT. Employing an independent Superintendent. o Gradco who operates the Landfill & Organics Facility has had their contract extended to 2026. o Very windy conditions the day prior to this internal audit resulted in delay to some activities.	Negligible risk
6.2 Environmental objectives	Environmental objectives are established and those reported here relate to recent developments in the DOT planning. o Commissioning has been addressed in the tender process with 10 consecutive batches to pass full compliance before the supplier has lessened liability. o Swipe card entry was mentioned at the 2020 internal audit. This remains as a possibility, yet the DOT project is a higher priority.	Negligible risk
Support		
7.1 Resources	The organisation determines and provides resources through its small and dedicated team as well as a range of contracted service providers. Gradco as the contractor running the DWM Landfill & Organics Facility are required to supply the human resources to run the new proposed and planned DOT plant. A small group of employees are on site – John Cooney, Peter Maverick [rubbish pick up], Andrew Maggs, Max. An upgrade to mains supply will be required and progressive discussions with LMS about energy capture from gas to provide a base load to run the plant. Site inspection confirmed equipment= Komptech windrow turner [owned by DWM], 380 Komatsu loader [owned by Gradco], and Komptech Nemus 2700 screen [owned by Gradco].	Negligible risk
7.2 Competence	There are people who work under control of DWM and can affect environmental performance or compliance obligations. These include those who are employed by the contractor Gradco. In order to ensure thorough competence, Gradco has brought in another person at higher level to assist the on-site supervisor on a periodic basis. Ensuring competence through	Negligible risk

Requirements of the Standard	Auditor comments on documented reviewed	Conformance signal - risk
	education or training includes awareness, such as EMS Awareness Presentation Video. Sighted documented information as evidence of competence, such as the Skills Matrix register & Consultant List [ID 20839]. There are sheets for landfill, composting, office. Sighted landfill requirements for leachate sampling and Wildseed Tasmanian doing revegetation. Biosecurity is in there with respect to Fruit Fly. This is well done with its integration of staff and external providers, including back up providers [example, Palmers Plumbing for irrigation/plumbing works after Irrigation Tas].	
7.3 Awareness	Ensuring that persons doing work under the organisation's control are aware of the policy, aspects/impacts, contribution to environmental performance and implications of unfulfilled compliance, was confirmed as follows: o The tenderer has had to address competence and awareness through conditions in the tender on the commissioning of the new DOT plant. o Miriam participated in the annual EMS awareness session, following several months of transition with the outgoing person on maternity leave. Sighted M-Files record of EMS Awareness Presentation Video with its audio. It has BSI logo. It covers the "why we have it", "high risk activities" [leachate ponds], 'composting waste – odour risk", "landfill – fire risk", {freshwater pollution risk", "stormwater – contamination risk", "litter – risk", "underground water contamination risk". It identifies how people can help control risks. This is very well done! o Three employees of Gradco were interviewed. Each for their respective roles displayed awareness of their contribution to enhanced environmental performance and implications of not conforming to the EMS. Daryn was a truck driver delivering his third load for the day from Central Coast Council's Resource Recover Centre. He explained how he took pride in his job, condition of his vehicle and procedure for remote bin covers removal so as to avoid pollution. Mark was a loader operator in the composting area. He explained how he would mix loads of mixed greens and milk for compost batch, use his machine to dig and control a fire in compost heap, and trust in screening process to remove contaminants. John operated the Bomag compactor at the landfill. He explained how he would need to quickly work on deposited load of Collex recycle waste at landfill as this was more prone to blow away. o LED sign now in place to display notices, such as CWDA to be signed.	Negligible risk
7.4 Communication	There are established processes for relevant internal and external communications relevant to the EMS CAR register sighted with complaints and issues. For instance: o ENV-711 on 23/6/21 of odour complaint from resident of Garrett Street via Latrobe Council. Investigation showed no direct link to site. ENV-7134 on 18/8/21 about increased presence of flied.Env-712 on 16/6/21 from BSI audit. o Chief Executive Officer has released some press releases – Media Release – April 2021 on compost facility upgrade [https://dulverton.com.au/news/]. This includes details and a concept map [*It notes that "Concept image shown without roof to allow an interior view."*] o The website is available for contact purposes.	Negligible risk
7.5 Documented information	The organisation's EMS does include documented information required by ISO 14001 [as referenced in various places in this report's cited evidence] and as DWM determines necessary for an effective EMS. Control and availability is through M-Files is accessible from Dulverton Cloud. During the internal audit the Projects and Administration Manager accessed a range of documented information required as evidence. There are several [three] 'vaults' with different levels of restriction for each. Staff members have been trained in using it. The Projects and Administration Manager has figured out how to access documents ["sighted view of recently accessed by me"]. Examples: o ID 47746 is the ISO 14001 standard. o The record as a CSV file for registers was forwarded by Miriam on the day after the internal auditor was on site. There were 14 records with 12 denoted by "EMS – R" and an ID number, such as EMS – R 010 for hazardous substances, 022 for aspects and impacts, 050 for samples testing and 130 for compliance. o Gradco's Ricoh MFM scanner has automatic button on with setup to email to DWM's office records of monitoring and EMS performance at	Negligible risk

Requirements of the Standard	Auditor comments on documented reviewed	Conformance signal – risk
	the site. o CWDA Controlled Waste Delivery Advice is a paper form is a DWM form as Form WI 010c. 20210055 to Vale waste for asbestos [2.24 tonnes] on 7-Sep-2021, 20210054 to Veolia 6-Sep-2021 from BioMar [quarantine waste 3.16 tonnes] and 1580084 to Kelly's Waste Management for Dical [burnt lime from Sibelco]. An electronic system is being considered but with other business priorities it will probably be instigated at a more appropriate time.	
Operation		
8.1 Operational planning and control	The organisation has processes established, implemented, controlled and maintained, with established operating criteria at facility site. o Whole of site & proposed DOT: o Water factors – A sample excavation for a proposed water pipeline was dug in the section over a gas pipeline to confirm with gas company a safe depth of coverage remaining over the pipeline [see photo]. A DIX Engineering filter and controller are in place. o Landfill: o Bird deterrent - There have been no changes in bird deterrent and no recent records were sighted. The record for this was forwarded by Miriam after the internal auditor had left the site. EMS P127a is an information sheet on fauna. 1567280 is "crow control" SWMS by Gary Padman, relating to method of control. Sighted the organisation's stamp with 13/9/2019 approval by Mel of SWMS task: DWM Feral Animal control – Crows, and separate signature page for SWMS task: DWM Feral Animal control [Crows] signed by Adam Higgins 16/11/2019. o Litter - Installed litter poles around southern edge of landfill. o Composting: o All inputs are accounted for, such as load on docket 263841. o Screening after composting is complete removes contaminants [see photo].	Negligible risk
8.2 Emergency preparedness	There was an emergency drill. The record for this was forwarded by Abbie on the day after the internal auditor was on site. It is a Gradco record and covered a scenario on 12th May 2021. It includes sufficient detail of the scenario, which was collision of two items of mobile plant – selected as relevant due to past historic events. It did have a very strong focus on OHS, such as "DRSABCD". Its reference to environmental impacts appeared confined to several references to "emergency services". ISSUE N° 2021-01 = Notwithstanding that the safety and wellbeing of personnel is of utmost importance; apart from OHS commentary, the organisation might want to consider including more clear reference to emergency scenario actions that refer to prevention or mitigation of adverse environmental impacts. For instance, the 12/05/2021 scenario had "Plant/Interaction Collision" and the control of potential petrochemical spills, pollution and contamination of soil and water could be noted. o Clarification 16th October 2021: Emergency scenarios, and possibly any associated forms [corrective actions] or mechanisms of recording these, would benefit from having provision to document any associated environmental impacts. Without this, such information is potentially lost and the organisation might not capture the full potential benefit of their emergency preparedness testing. Remember the emergency preparedness is for "those that can have an environmental impact" – see clause 6.1.1 are cross-referenced by clause 8.2. Sighted spill kits at DWMF [compost windrowing area and green shed]. SDS documents have been printed and were sighted onsite. The record as a CSV file for SDS was forwarded by Miriam on the day after the internal auditor was on site. Types include chemical reagents, cleaning products, herbicides and petrochemicals.	Low level risk
Performance evaluation		
9.1 Monitoring, measurement, analysis and evaluation	The organisation has systems in place to monitor, measure, analyse and evaluate its environmental performance. For example: o Core Task Register records tasks every day, or particular day, or week of month, or month of year. Sighted every Tuesday doing water sampling and beginning of each month results are emailed to Tas Water. Sighted August with leachate pipeline clean added after recent block, as a	Low level risk

Requirements of the Standard	Auditor comments on documented reviewed	Conformance signal - risk
	reminder for 2022 and every year after. September with feral cat trapping MFID 1542019. June has six monthly checks of fire extinguishers. Records of landfill leachate results with most recent 30/8/2021 with result 6 mg/L for oils. Note that these are via GHD project 3219202. Sighted stormwater & leachate December 2020 results. o Sighted: o WI 155a Windrow Monitoring Report 27/8/21, o WI 155c DORF Windrow Turning Report 27/8/21 & 28/8/21. We note that the last 4 lines have hand written date of 28/21 – this appears to be meant to be 28/8/21. This is not an "ISSUE". o WI 043a Site Supervisor Weekly Diary 23-29/8/21 [includes spot check of incoming waste]. o WI 043a Site Supervisor Weekly 16-22/8/21 with reference to 14 cats caught. o WI 043b DORF Weekly Diary 9-15/8/21, noting very wet. o WI 043b DORF Weekly Diary 16-22/8/21. o WI 042 Monthly Environmental Checklist, June, July, and August, noting spray of weeds on 27/8/21 and ground saturated. This would result in less likelihood of problems associated with dust. o External provider LMS Energy July 2021 Dulverton Monthly Landfill Gas report recording 145,865m^3 gas flared producing 1,394.19 CO_2e. o M-Files indicated EMS R010 Register of Hazardous Substances. This relates to chemicals at the landfill and composting sites. There are expiry reminders for Hunter's Fly Spray 7/9/2021 & Hunter's Toilet Liquid for Porta-loo, both of which expire in September 2021. There are 33 chemicals listed and 4 of these are classified as dangerous. It cross references P 081 as the procedure for hazardous substances. Item has website current SDS dated Issue Date: 27/06/2017 [https://www.energypower.com.au/live/wp-content/uploads/2019/05/SDS_CAT_Extended_Life_Coolant_ELC.pdf] that was confirmed as the current one on M-Files. ISSUE N° 2021-02 = Hence, R 010 Register of Hazardous Substances has not been updated to indicate latest SDS date as per "REMINDER: If this is a current SDS, don't forget to link it to the R 010 [MFID 15570]" on the meta-data card. Also, the table has "MSDS" rather than "SDS". This internal audit reviewed with the organisation their consideration of the matter identified at the 2020 internal audit identified as ISSUE N° 2020-01 [see its wording below]. o The organisation has considered this providing new evidence of monitoring helicopter spray or applications. The records are 19/03/2021 & 24/01/21 with January's total of 3.2 Litres herbicides balanced. It confirmed no spill and all chemical used. March was an application of lime fertiliser with 8.5 tonnes total used, at a rate of 500 kg ha^{-1} and about 250 kg per load. 36 loads were recorded. If there was 250 kg per load and 36 loads, then the total used would equate to 9 tonnes total used. ISSUE N° 2021-03 = Record of helicopter application of lime indicates that 8.5 tonnes total used, yet at application rate listed of 0.25 tonnes per load and 36 loads, then the total would appear that it is short by 0.5 tonnes. o Clarification 16th October 2021: The ISO 14001 standard expects the organisation to monitor, measure, analyse and evaluate its environmental performance. In this case, chemical [fertiliser] use was monitored. However, there was no analysis or evaluation. The internal audit comments indicate that there are inconsistent figures in either rate applied and/or total amount applied. The organisation would benefit from having someone check and perform a quick analysis of chemical use. In this situation there is a discrepancy of 500 kilograms of lime. In this case it is difficult to confirm that you meet the clause in the standard "ensure that calibrated or verified monitoring or measuring equipment". The issue could simply be one of calculation or transcription by Tasmanian Helicopters. It could be an error in their calibrated equipment. Hence, there is value in having such records "analysed and evaluated" to check for errors. Some errors could result in	

Requirements of the Standard	Auditor comments on documented reviewed	Conformance signal - risk
	overdosing with potential environmental impacts. This is not a desirable outcome. o There are some quotes received for other spray options – sighted 2021 Serve-Ag DWN Weed Management Plan. From a site visit and recommendation. o The wording of ISSUE N° 2020-01 was = "The monitoring, measurement, analysis and evaluation of some outsourced processes might not be sufficient to capture errors that could impact environmental performance. Evidence: Tasmanian helicopters chemical application form N° TH 16251 dated 27-Jun-2020 has errors in total chemical used, with totals equating to 18.0 and not 16.8 hectares treated at the listed application rates for all four chemicals [Stinger, Clomac, Pulse, Crucial], thereby indicating possible recording errors, excessive application or waste."	
9.2 Internal audit programme	The organisation has provided this internal audit programme. In establishing the current internal audit programme, it provided feedback to the internal auditor of a Certification Body audit report's "Opportunity for Improvement in relation to audit planning". This considered that "Internal audit planning documents could outline more detail regarding: Internal auditing activities in place. Processes / system audits that are programmed on risk and the importance of the activity being assessed." This opportunity was embraced and the internal audit plan in Table 1 listed "Specific systems to assess", "Specific processes to assess" and "Higher importance or risk activities to view". All points listed in the internal audit plan were assessed in this report, including: o Swipe card entry – see 6.2 environmental objectives. o Interview of drivers – see 7.3 awareness. o SDS – see 9.1 monitoring. o Monitoring – see 9.1 monitoring o Induction - o Compacting –see 7.3 awareness. o Composting – see 6.1.2 aspects, 6.1.4 planning action, 7.2 competence, 7.3 awareness, 8.1 operational planning, 8.2 emergency, 9.1 monitoring, 10 improvement. o Awareness – see 7.3 awareness. o Spraying – see 9.1 monitoring. o Birds – see 8.1 operational planning. o Dust - see 9.1 monitoring. o Biosecurity – see 6.1.3 Compliance obligations, 7.2 competence. o Odour see 6.1.3 compliance, 7.3 awareness, 7.4 communication, 10 improvement.	Negligible risk
9.3 Management review	Top management does review the organisation's EMS. There is no new annual management review to report at this internal audit since the next meeting is set for later in September 2021, whilst the previous one was before the last internal audit in 2020. Nonetheless, we did sight the following evidence that the organisation does include in its review consideration of the matters required by ISO 14001: o The EMS Manual is version 22.05.2019 as MFID 1540215 refers to review at section 8.4 o Procedure P150 [MFID 5485, version 17.05.2019] that has an agenda for the review and what documented information should be retained. o Template used for minutes of management review. o Minutes record from 21st October 2020. This was the last review miniated. ISSUE N° 2021-04 = Record of management review does not have start time even though it is meant to show "Meeting Start Date and Time". o Clarification 16th October 2021: This is simply a matter of housekeeping. The organisation would benefit from having someone outside the management review process proof read the minutes. The ISO 14001 standard expects the organisation to "retain documented information as evidence". Having a "start time" is valuable as it indicates how long a review goes for and this might indicate the thoroughness or otherwise of the review. Its is commendable to record times. This internal audit reviewed with the organisation their consideration of the matter identified at the 2020 internal audit identified as ISSUE N° 2020-02 [see its wording below].	Low level risk

Requirements of the Standard	Auditor comments on documented reviewed	Conformance signal - risk
	o The organisation has considered this indicating that their approach to reviewing environmental performance is one of an automated regular means of reviewing various procedures or necessary changes to requirements/contracts. Hence, whilst there is a formal annual management review, there is also a process of review at planned intervals. Together these two approaches work to ensure continuing suitability, adequacy, and effectiveness of the EMS. o The wording of ISSUE N° 2020-01 was = "management review minutes contain no obvious information on environmental performance trends in monitoring and measuring results, fulfilment of compliance obligations and results of audits. Evidence: Minutes dated 21-Oct-2020 at item 3 are "results of Internal Audits in 2020" yet these do not give results of past audit but indicate future audit and certification body audit is only mentioned as "took place" without any reference to results. There is absolutely no mention of monitoring and measuring results plus fulfilment of compliance obligations."	
Improvement		
10.1 to 10.3	CAR register sighted with a range of issues. ENV-711 on 23/6/21 of odour complaint from resident of Garrett Street via Latrobe Council. Investigation showed no direct link to site. ENV-7134 on 18/8/21 about increased presence of filed. Env-712 on 16/6/21 from BSI audit. Chief Executive Officer has released some press releases – Media Release – April 2021 on compost facility upgrade [https://dulverton.com.au/news/]. This includes details and a concept map [*It notes that "Concept image shown without roof to allow an interior view."*] The organisation has instigated several improvements to its whole of business management that has related benefits to its environmental management system. o The internal auditor notes that pretty much every audit there have been tweaks, adjustments and changes in its system. o At this audit the internal auditor notes: filtration system at leachate pump near composting area, tipping plate design, DOT proposal, new concrete base plates for poles to hold litter retention netting, successful processing of berry coir for composting, project preliminary work for water pipeline to compost facility, LED sign at entrance now in place to display notices, such as CWDA to be signed. o DMW considered both internal audit matters identified in 2020.	Negligible risk

Photographic plates

Photo below N° 1 = The Komptech Nemus 2700 screen [owned by Gradco].

Photo below N° 2 = Recycle waste site needs compaction soon after delivery to control wind-blown litter.

Photo below N° 3 = Pump station with new filter.

Photo below N° 4 = Test excavation ditch area for water pipe loacted near gas pipeline.

Photo below N° 5 = Green matter being delivered for composting.

Photo below N° 6 = Unloading material onto the landfill site.

Photo below N° 7 = Close up of the contamination in compost – removed at screening.

Photo below N° 8 = Docket N° 263841 of delivered material for composting.

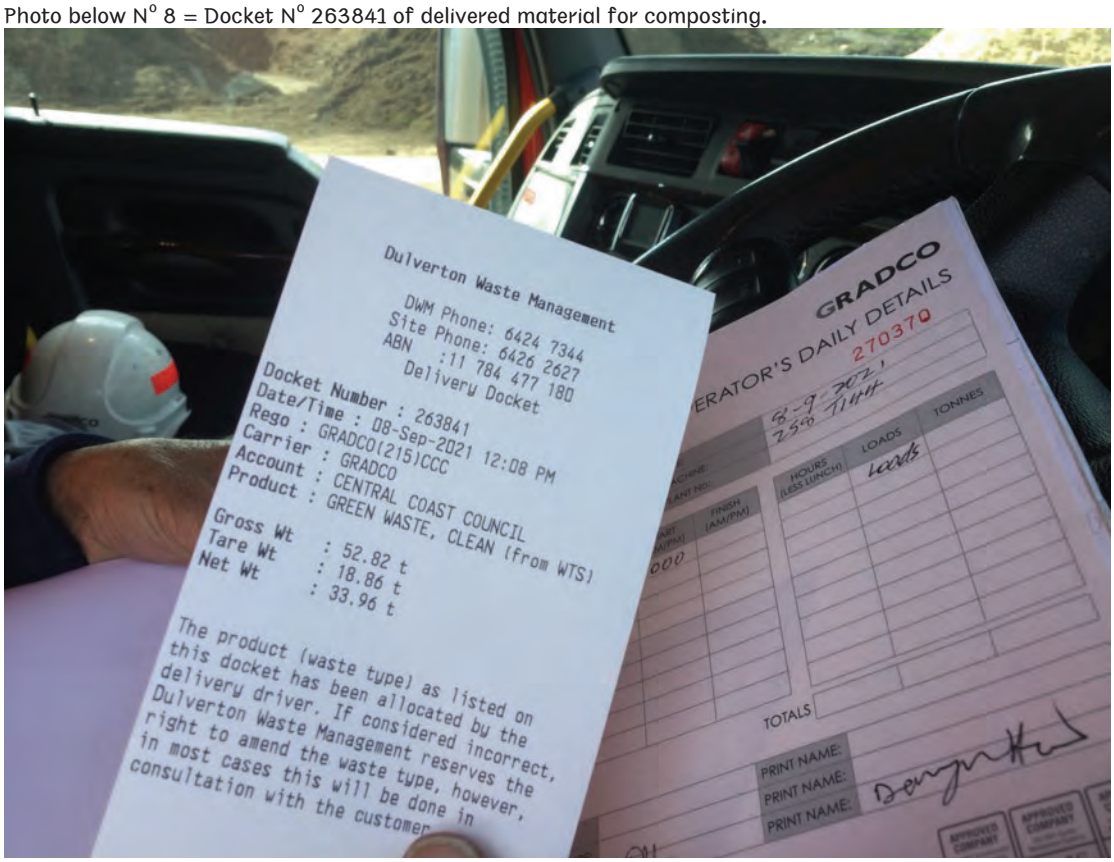

Photo below N° 9 = New tipping plate design by Gradco.

Photo below N° 10 = New fabricated tipping plate by Gradco.

Photo belo

This page marks the end of the report.

Assessment Report

Dulverton Waste Management

Assessment dates	04/05/2022 (Please refer to Appendix for details)
Assessment Location(s)	Devonport, Latrobe Tasmania.
Report Author	Craig Hobbins
Assessment Standard(s)	ISO 14001:2015

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Table of contents

Executive Summary

Based on the results of this audit, it has been determined that Dulverton Waste Management environmental management system implementation is ongoing and continues to achieve its intended outcomes. The audit objectives have been achieved. A recommendation for Continued Certification to ISO 14001:2015 is made.

I am pleased to report that system implementation and compliance was evident across all facets of the business examined. The areas assessed during the audit were found to be effectively managed and controlled. Waste management processes and environmental controls continue to be improved, with programs set and managed through the objective and target framework. Internal auditing and management review processes continue to be beneficial, and provide sound detail relating to waste processing risks and opportunities.

I would like to thank Abbie and Matt for their participation in the audit and for their assistance and cooperation.

Changes in the organization since last assessment

There is no significant change of the organization structure and key personnel involved in the audited management system.

No change in relation to the audited organization's activities, products or services covered by the scope of certification was identified.

There was no change to the reference or normative documents which is related to the scope of certification.

NCR summary

There were no outstanding nonconformities to review from previous assessments.

No new nonconformities were identified during the assessment. Enhanced detail relating to the overall assessment findings is contained within subsequent sections of the report.

Assessment objective, scope and criteria

The objective of the assessment was to conduct a surveillance assessment and look for positive evidence to ensure that elements of the scope of certification and the requirements of the management standard are effectively addressed by the organisation's management system and that the system is demonstrating the ability to support the achievement of statutory, regulatory and contractual requirements and the organisation's specified objectives, as applicable with regard to the scope of the management standard, and to confirm the on-going achievement and applicability of the forward strategic plan and where applicable to identify potential areas for improvement of the management system.

The scope of the assessment is the documented management system with relation to the requirements of ISO 14001:2018 and the defined assessment plan provided in terms of locations and areas of the system and organisation to be assessed.

Criteria:

* ISO 14001:2001.
* DWM Environmental Management System Manual 30th November 2021.

Statutory and regulatory requirements

No changes to statutory or regulatory requirements have occurred since the previous BSI Assessment. This includes requirements governed under the EPA Licences (Landfill 7158/3 and DORF 7852/1). Compliance monitoring processes, including site / infrastructure inspections, air and leachate testing and monitoring continue. The Compliance Register remains in place.

Processes are sound and meet requirements.

Assessment Participants

Name	Position	Opening Meeting	Closing Meeting	Interviewed (processes)
Abbie All	Environmental Administration Officer	X	X	X
Matt Layton	Operations and Project Officer	X	X	X

BSI assessment team

Name	Position
Craig Hobbins	Team Leader

Assessment conclusion and recommendation

The audit objectives have been achieved and the certificate scope remains appropriate. The audit team concludes based on the results of this audit that the organization does fulfil the standards and audit criteria identified within the audit report and it is deemed that the management system continues to achieve its intended outcomes.

RECOMMENDED - The audited organization can be recommended for continued certification to the above listed standards, and has been found in general compliance with the audit criteria as stated in the above-mentioned audit plan.

Use of certification documents, mark / logo or report

The use of the BSI certification documents and mark / logo is effectively controlled.

Findings from this assessment

General requirements, certification scope:

Dulverton Waste Management's Environmental Management System Manual 30th November 2021 and associated processes were used as a reference during this review. The management system and associated controls are implemented and maintained in accordance with the requirements of ISO 14001:2015.

This audit sampled environmental management system implementation within the processes covered under the scope of certification. Dulverton Waste Management takes a process approach in developing, maintaining and improving their environmental management system.

COVID-19 controls and processes developed to protect workers and visitors during the COVID-19 event were examined. All workers continue to work under flexible working arrangements, and are required to follow health directives associated with hygiene, isolation measures etc. This is continually monitored by the Management Team,

The scope of certification confirmed previous BSI assessments was again confirmed with no changes required as detailed below. Core business activities remain unchanged.

"For the management of a waste management facility comprising landfill and compost production operations".

Processes and documentation in place are sound and meet requirements.

Records sighted:

- Environmental Management System Manual 30th November 2021.
- Confirmed in interview with the Environmental Administration Officer.

Environmental management system and business improvements.

Environmental management system, general business and waste management improvements implemented since the previous BSI assessment are summarised as below.

- Construction for the compost facility upgrade is to commence in September 2022. Odour modelling assessments were conducted completed with containment plans developed for the new structures.
- Some changes in the waste products received have occurred. Dulverton is now accepting some low grade medical waste, being disposed as controlled waste.
- A process to reduce unloading risks has occurred which involved interested parties such as waste delivery companies.
- A specialist consultant was engaged to conduct a dial before you dig information session, focusing on hazards and risks associated with the leachate pipeline outside of the waste management site.
- A new vehicle wash down facility has been installed within the waste management facility.
- Final processing of compost is now conducted within an area that is segregated from the compost windrows. This has reduced contamination risks.
- A feasibility study reviewing the potential to generate electricity through the methane extraction / burning process is underway.

Review of previous findings.

There were no non-conformance issues raised during the previous BSI Assessment.

Policy:

Evidence to demonstrate the continued implementation of Dulverton Waste Management's environmental management policy statement was provided. Access to the policy is obtained through the intranet system. The policy is made available to interested parties on request.

Compliance with the requirements of the standards is sound.

Records sighted:

Records / documented information sighted:

* Environmental Policy (12/8/2020).

* Confirmed in interview with the Environmental Administration Officer.

Objectives and targets, environmental aspects and impacts:

Objectives and targets are relative to the operations and improvement strategies of Dulverton Waste Management. The Environmental Risk Register was sighted. Objectives and targets are set in conjunction with budgets, and set for each financial year. Current objectives are based around site improvements (odour modelling, dust reduction, improved leachate management, windblown litter reductions, and improved methane extraction though increases in gas well infrastructure). Once objects are achieved, they are signed off and placed within the Completed tab on the Register. Objectives and targets are examined during management review processes.

The Environmental Management Systems Aspects and Impacts Register was sighted. The register was recently reviewed and amended by the Board, with changes made to better reflect regulatory reporting requirements, as well as the Board's and general business's risk appetite. No changes to risk management models or assessment processes were made. Environmental aspects and impacts specific to the landfill, DORF, sites and projects also remain unchanged.

Compliance with the requirements of the standards is sound.

Record sighted:

- Environmental Management System Aspects and Impacts Register.
- Environmental Objectives Register.
- Management Review Minutes 26/10/2021.
- Confirmed in interview with the Environmental Administration Officer.

Internal audit and management review.

Internal audit procedures are in place and were confirmed. Audit results are documented, detailing a summary, issues and improvements detected, and actions to be taken. Any corrective action process required includes root cause analysis activities.

The Opportunity for Improvement raised during the previous BSI Recertification Assessment has been addressed. Audit plans and planning records give a clear indication of system aspects and the processes and infrastructure to be examined.

Records from the Internal Audit conducted on the 8th of September 2021 were sighted. The audit was conducted by an External Consultant. The report details the audit methodology, scope, summary and findings. The overall result of the audit was sound, with some low risk / improvement findings detected.

Internal auditing processes meet all requirements of the Standard.

Management reviews meetings are conducted in accordance with all requirements of the standard. This includes a review of system functionality and effectiveness, improvements, nonconformances and corrective actions, objectives and targets, audits result and overall environmental management system performance.

Compliance with the requirements of the standards is sound.

Documented information / records sighted:

- Internal audit plans and planning correspondence.
- Internal Audit Report 8th September 2021.
- Management Review Minutes 26th October 2021.
- Confirmed in interview with the Environmental Administration Officer.

Incident management, corrective action.

Incident management and corrective action process covering site and management system related non-conformities are in place. Reporting and investigation processes are conducted depending on the nature and risk of the issue. Records include detail on root causes and corrective action measures to be taken, detailed within the corresponding procedures. Customer / stakeholder complaints are treated using these processes.

The Environmental and General Corrective Action Register was sighted. The register includes detail regarding the incident / issue, action taken, root cause analysis and long-term action detail. The register contains tabs for open issues, closed issues, as well as issues from internal audits.

Processes in place are sound and meet requirements.

Records sighted:

- Environmental and General Corrective Action Register.
- Confirmed in interview with the Environmental Administration Officer.

Operation control, process management.

Environmental management controls were sampled within the waste management processes sites. Improvements to site management controls continue to be implemented.

The following infrastructure / processes were sighted and were confirmed to be conducted / managed in accordance with the requirements of the environmental management system and the standard.

- Site access and security infrastructure.
- Litter netting.
- Compost production and finalisation areas, including windrow marking signage.
- Weighbridge.
- Leachate ponds.
- Gas extraction infrastructure.
- Weed management and pest control processes confirmed.
- Spill kits.
- Firefighting equipment.
- Washdown bay.

Records and processes relating to any complaint about the client that has been referred to BSI:

No complaints regarding Dulverton Waste Management are known to have been directed to BSI by customers.

Next visit objectives, scope and criteria

The objective of the assessment is to conduct a surveillance assessment and look for positive evidence to ensure the elements of the scope of certification and the requirements of the management standard are effectively addressed by the organisation's management system and that the system is demonstrating the ability to support the achievement of statutory, regulatory and contractual requirements and the organisations specified objectives, as applicable with regard to the scope of the management standard, and to confirm the on-going achievement and applicability of the forward strategic plan.

The scope of the assessment is the documented management system with relation to the requirements of ISO 14001:2018 and the defined assessment plan provided in terms of locations and areas of the system and organisation to be assessed.

Criteria:

* ISO 14001:2001.

* DWM Environmental Management System Manual 30th November 2021.

Please note that BSI reserves the right to apply a charge equivalent to the full daily rate for cancellation of the visit by the organisation within 30 days of an agreed visit date.

Next Visit Plan

Plan to be provided by the BSI Assessor closer to the due date.

Appendix: Your certification structure & ongoing assessment programme

Scope of Certification

EMS 698108 (ISO 14001:2015)

For the management of a waste management facility comprising landfill and compost production operations.

Assessed location(s)

Devonport / EMS 698108 (ISO 14001:2015)

Location reference	0047695802-000
Address	Dulverton Waste Management Dulverton Landfill Level 1, 17 Fenton Way Devonport Tasmania 7310
Visit type	Continuing assessment (surveillance)
Assessment number	3382320
Assessment dates	04/05/2022
Deviation from Audit Plan	No
Total number of Employees	8
Effective number of Employees	6
Scope of activities at the site	For the management of a waste management facility comprising landfill and compost production operations.
Assessment duration	0.5 day(s)

Latrobe / EMS 698108 (ISO 14001:2015)

Location reference	0047695802-001
Address	Dulverton Waste Management 145 Dawson Siding Road Latrobe Tasmania 7307
Visit type	Continuing assessment (surveillance)
Assessment number	3383508
Assessment dates	04/05/2022
Deviation from Audit Plan	No
Total number of Employees	8
Effective number of Employees	6
Scope of activities at the site	For the management of a waste management facility comprising landfill and compost production operations.
Assessment duration	0.5 day(s)

Certification assessment program

Certificate Number - EMS 698108
Location reference - 0047695802-000

		Audit1	Audit2	Audit3
Business area/Location	**Date (mm/yy):**	05/21	05/22	05/23
	Duration (days):	1	1	1
Scope and Policy		X	X	X
Organisational context		X		X
Leadership and Commitment		X	X	X
Management System Support		X		X
Planning and Resources		X	X	
Human Resource Management			X	X
Control of Documents and Records		X		
Objectives / Aspects /Performance Monitoring & Measurement		X	X	X
Management Review		X	X	X
Internal Audits		X	X	X
Actions / Non-Conformity / Incidents / Complaints		X	X	X
Risk Management / Prevention		X	X	X
Legal and Other Requirements		X	X	X
Improvement		X	X	X
Operational Control		X	X	X

Expected outcomes for accredited certification.

What accredited management system certification means?

To achieve an organization's objectives related to the Expected Outcomes intended by the management systems standard, the accredited management system certification is expected to provide confidence that the organization has a management system that conforms to the applicable requirements of the specific ISO standard.

In particular, it is to be expected that the organization

• has a system which is appropriate for its organizational context and certification scope, a defined policy appropriate for the intent of the specific management system standard and to the nature, scale and impacts of its activities, products and services over their lifecycles, is addressing risks and opportunities associated with its context and objectives;
• analyses and understands customer needs and expectations, as well as the relevant statutory and

regulatory requirements related to its products, processes and services;
• ensures that product, process and service characteristics have been specified in order to meet customer and applicable statutory/regulatory requirements;
• has determined and is managing the processes needed to achieve the Expected Outcomes intended by the management system standard;
• has ensured the availability of resources necessary to support the operation and monitoring of these products, processes and services;
• monitors and controls the defined product process and service characteristics;
• aims to prevent nonconformities, and has systematic improvement processes in place including the addressing of complaints from interested parties;
• has implemented an effective internal audit and management review process;
• is monitoring, measuring, analysing, evaluating and improving the effectiveness of its management system and has implemented processes for communicating internally, as well as responding to and communicating with interested external parties.

What accredited management systems certification does not mean?

It is important to recognize that management system standards define requirements for an organization's management system, and not the specific performance criteria that are to be achieved (such as product or service standards, environmental performance criteria etc).

Accredited management systems certification should provide confidence in the organization's ability to meet its objectives related to the intent of the management system standard. A management systems audit is not a full legal compliance audit, and does not necessarily ensure ethical behaviour or that the organization will always achieve 100% conformity and legal compliance, though this should of course be a permanent goal.

Within its scope of certification, accredited management systems certification does not imply or ensure, for example:
• that the organization is providing a superior product and service, or
• that the organization's product and service itself is certified as meeting the requirements of an ISO (or any other) standard or specification.

Definitions of findings:

Non-conformity:

Non-fulfilment of a requirement.

Major nonconformity:

Nonconformity that affects the capability of the management system to achieve the intended results. Nonconformities could be classified as major in the following circumstances:
• If there is a significant doubt that effective process control is in place, or that products or services will meet specified requirements;
• A number of minor nonconformities associated with the same requirement or issue could demonstrate a systemic failure and thus constitute a major nonconformity.

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Opportunity for improvement:

It is a statement of fact made by an assessor during an assessment, and substantiated by objective evidence, referring to a weakness or potential deficiency in a management system which if not improved may lead to nonconformity in the future. We may provide generic information about industrial best practices but no specific solution shall be provided as a part of an opportunity for improvement.

Observation:

It is ONLY applicable for those schemes which prohibit the certification body to issue an opportunity for improvement.
It is a statement of fact made by the assessor referring to a weakness or potential deficiency in a management system which, if not improved, may lead to a nonconformity in the future.

How to contact BSI

Visit the BSI Connect Portal, our web-based self-service tool to access all your BSI assessment and testing data at a time that's convenient to you. View future audit schedules, submit your corrective action plans and download your reports and Mark of Trust logos to promote your achievement. Plus, you can benchmark your performance using our dashboards to help with your continual improvement journey.

Should you wish to speak with BSI in relation to your certification, please contact your local BSI office – contact details available from the BSI website:

https://www.bsigroup.com/en-AU/contact-us/

Notes

This report and related documents are prepared for and only for BSI's client and for no other purpose. As such, BSI does not accept or assume any responsibility (legal or otherwise) or accept any liability for or in connection with any other purpose for which the Report may be used, or to any other person to whom the Report is shown or in to whose hands it may come, and no other persons shall be entitled to rely on the Report. If you wish to distribute copies of this report external to your organisation, then all pages must be included.

BSI, its staff and agents shall keep confidential all information relating to your organisation and shall not disclose any such information to any third party, except that in the public domain or required by law or relevant accreditation bodies. BSI staff, agents and accreditation bodies have signed individual confidentiality undertakings and will only receive confidential information on a 'need to know' basis.

This audit was conducted through document reviews, interviews and observation of activities. The audit method used was based on sampling the organization's activities and it was aimed to evaluate the fulfilment of the audited requirements of the relevant management system standard or other normative document and confirm the conformity and effectiveness of the management system and its continued relevance and applicability for the scope of certification.

As this audit was based on a sample of the organization's activities, the findings reported do not imply to include all issues within the system.

Regulatory compliance

BSI requires to be informed of all relevant regulatory non-compliance or incidents that require notification to any regulatory authority. Acceptance of this report by the client signifies that all such issues have been disclosed as part of the assessment process and agreement that any such non-compliance or incidents occurring after this visit will be notified to BSI as soon as practical after the event.

Assessment Report

Dulverton Waste Management

Assessment dates	30/05/2023 (Please refer to Appendix for details)
Assessment Location(s)	Devonport, Latrobe Tasmania.
Report Author	Craig Hobbins
Assessment Standard(s)	ISO 14001:2015

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Table of contents

Executive Summary

Based on the results of this audit, it has been determined that the organisation fulfils the standards and audit criteria identified within the audit report, and it is deemed that the environmental management system achieves its intended outcomes. The audit objectives have been achieved. A recommendation for continued certification to ISO 14001:2015 is made.

Environmental management system and waste management process improvements continue to be generated, as detailed within the subsequent areas of this report. It is pleasing to observe the way the environmental management system is used to assist with waste management and associated infrastructure improvements. Future site planning and infrastructure improvements are designed to not only improve waste processing efficiencies, but to also reduce the site's environmental impacts. This aligns well with the requirements and intentions of ISO 14001.

No non-conformance or improvement opportunities were identified during this assessment. Enhanced details on audit findings and objective evidence sighted are detailed within the subsequent sections of this report.

I would like to thank Veronica and Matt for their hospitality and active participation in the audit.

Changes in the organisation since last assessment

The following changes in relation to organisation structure and key personnel involved in the certified management system were noted:

- Veronica Schilling was appointed as the new Chief Executive Officer in November 2022.

No change in relation to the audited organisation’s activities, products or services covered by the scope of certification was identified.

There was no change to the reference or normative documents which is related to the scope of certification.

NCR summary

There were no outstanding nonconformities to review from previous assessments.

No new nonconformities were identified during the assessment. Enhanced detail relating to the overall assessment findings is contained within subsequent sections of the report.

Assessment objective, scope and criteria

The objective of the assessment was to conduct a surveillance assessment and look for positive evidence to ensure that elements of the scope of certification and the requirements of the management standard are effectively addressed by the organisation's management system and that the system is demonstrating the ability to support the achievement of statutory, regulatory and contractual requirements and the organisation's specified objectives, as applicable with regard to the scope of the management standard, and to confirm the on-going achievement and applicability of the forward strategic plan and where applicable to identify potential areas for improvement of the management system.

The scope of the assessment is the documented management system with relation to the requirements of ISO 14001:2015 and the defined assessment plan provided in terms of locations and areas of the system and organisation to be assessed.

Criteria:

- ISO 14001:2015.
- DWM Environmental Management System Manual 30th November 2021.

Statutory and regulatory requirements

Dulverton Waste Management continues to operates under EPA Licence Numbers Landfill 7158/3 and DORF 7852/1. No changes have occurred to any licensing requirements and operating conditions since the previous BSI Assessment. The environmental management system continues to include waste management process controls, as well as reporting requirements implemented for the purpose of ensuring EPA licence compliance.

Processes and systems in place are sound and meet requirements.

Assessment Participants

Name	Position	Opening Meeting	Closing Meeting	Interviewed (processes)
Veronica Schilling	Chief Executive Officer	X	X	X
Matt Layton	Operations and Project Officer	X	X	X

BSI assessment team

Name	Position
Craig Hobbins	Team Leader

Assessment conclusion and recommendation

The audit objectives have been achieved and the certificate scope remains appropriate. The audit team concludes based on the results of this audit that the organisation does fulfil the standards and audit criteria identified within the audit report and it is deemed that the management system continues to achieve its intended outcomes.

RECOMMENDED - The audited organisation can be recommended for continued certification to the above listed standards, and has been found in general compliance with the audit criteria as stated in the above-mentioned audit plan.

Use of certification documents, mark / logo or report

The use of the BSI certification documents and mark / logo is effectively controlled.

Findings from this assessment

General requirements, management system implementation

Dulverton Waste Management's environmental management system information and process management controls were used as a reference during this assessment.

Management system implementation and maintenance processes covering the site environmental controls, site management processes and waste management operations were validated through an examination of infrastructure and waste management controls, changes and improvements as well as auditing and management review processes. The audit process and methodology confirmed controls for system documentation access, risk management processes, and system implementation across all facets of the business examined.

Dulverton Waste Management's Covid-19 risk management policies and procedures continue to be implemented. COVID management controls include risk assessment processes, cleaning and hygiene arrangements, as well as flexible working arrangements. Measures and controls are being monitored.

Processes and documentation in place are sound and meet requirements.

Records / documented information examined:

- DWM Environmental Management System Manual 30th November 2021.
- Confirmed in interview with the Chief Executive Officer and Operations and Project Officer.

Certification scope

The scope is confirmed as follows with no changes required:

"For the management of a waste management facility comprising landfill and compost production operations."

Changes and improvements since the previous BSI Assessment

Environmental management, processing and infrastructure improvements and changes made since the previous BSI Assessment are impressive and include:

- A new composting processing facility is under construction. The facility is designed to be 100% self-contained, and will capture all waste bi-products. Bi-products are planned to be sold to market. The future waste processing plan for the site is to process 48% of waste product as organic waste, and 52% as landfill.
- FOGO and waste packaging reduction strategies governed under the Tasmanian Waste Action Plan 2021 are in place. A shift in the waste products being processed has occurred, primarily through an increase in FOGO waste.
- A review of the DWM Strategic Plan occurred. This included a review of operations and waste treatment risks arising from changes occurring as result of the waste action plan.
- The Burnie Waste Transfer Station is to be managed by Dulverton Waste Management. Operations are to be contracted to the existing waste management contractor at the landfill / composting site (Graco).

Site and waste management improvements observed during the site visit included:

- A process to improve site boundary fencing is in place, which includes an upgrade of the litter fencing.
- Leachate ponds are being replaced by tanks, with the existing ponds to be used as a backup to deal with events such as severe rainfall. This improvement reduces the amount of site waste water, including leachate that is required to be discharged.
- CCTV cameras are installed across the site, improving incident investigation processes.

Policy framework

Dulverton Waste Management has developed and implemented an environmental management policy addressing the requirements of the ISO 14001 Standard. No changes have been made to the policy since the previous BSI Assessment. The policy is made available as documented information and is accessible to all interested parties. Compliance with the requirements of the Standard continues.

Records / documented information examined:

- Environmental Policy (12/8/2020).
- Confirmed in interview with the Chief Executive Officer and Operations and Project Officer.

Objectives and targets

Objectives and targets relevant to the Dulverton Waste Management are developed, documented and implemented. The Environmental Objectives Register refers. The register was reviewed and updated in November 2023 to include objectives and targets relevant to the reduction of organics in the landfill, the minimisation of leachate in irrigation areas, and to increase landfill capacity. The register outlines objective status details.

Compliance with the requirements of the standard is sound.

Records / documented information examined:

- Environmental Objectives Register.
- Confirmed in interview with the Chief Executive Officer and Operations and Project Officer.

Environmental aspects and impacts

Environmental aspects and impacts associated with the landfill operations and composting processes were examined with no changes made since the previous BSI Assessment. Environmental aspects and impacts continue documented within the Environmental Management System Aspects and Impacts Register 1/2/2023. This is a live document, continually reviewed and updated to reflect aspect and impact changes as the site changes and evolves. Changes are highlighted in ‘pink’. Once the board approves changes, the colour coding is removed.

Compliance with the requirements on the Standard is sound.

Records / documented information and processes examined:

- Environmental Management System Aspects and Impacts Register 1/2/2023.
- Confirmed in interview with the Chief Executive Officer and Operations and Project Officer.

Management review processes

Management review processes are conducted in accordance with the requirements of the Standard and include an examination of all management review input and output requirements. Minutes from the review meeting held in November 2022 were examined. Meeting minutes demonstrate a comprehensive overview of environmental management performance, compliance and improvement.

Processes in place are sound and meet requirements.

Records / documented information examined:

- Management Review Meeting Minutes 10/11/2022.
- Confirmed in interview with the Chief Executive Officer and Operations and Project Officer.

Internal audit

Internal audit planning and scheduling continues to be managed and programmed as required by the Standard. Records and reports provide a detailed summary of audit findings and results, with summary detail reported during management review processes. Corrective action processes arising from audits when required include root cause analysis activities.

Records from the internal audit conducted on the 18th of February 2023 were sighted. The audit was conducted by an External Consultant. No significant environmental management findings were raised.

Internal auditing processes meet all requirements of the Standard.

Records / documented information examined:

- Internal Audit Report 18th of February 2023.
- Confirmed in interview with the Chief Executive Officer and Operations and Project Officer.

Control of non-conformances, incident management, corrective action

Non-conformance management and corrective action processes continue to be implemented, focusing on environmental management related issues. Procedures for corrective action activities include an examination of root cause issues as required. The process extends to customer / stakeholder complaints. As confirmed in interview with the Operations and Project Officer, no significant environmental issues or licence breaches have occurred since the previous BSI Assessment.

Processes in place are sound and meet requirements.

Records / documented information examined:

- Environmental and General Corrective Action Register.
- Confirmed in interview with the Chief Executive Officer and Operations and Project Officer.

Operation control, process management

A site visit was conducted at the landfill and composting operations, examining environmental management controls. The following controls and infrastructure were examined and confirmed to be compliant with the environmental management system and the standards requirements.

- Site entry and exit access points (including weighbridge and boom gate), and site security fencing.
- Litter netting.
- Leachate ponds and new tank installation process sighted.
- Composting operational controls (leachate, windrow and stockpile identification).
- Pest and weed management controls confirmed.
- Landfill operations confirmed, with no fundamental operational changes since the previous BSI Assessment. A new cell has however been established.

Records and processes relating to any complaint about the client that has been referred to BSI

No complaints regarding Dulverton Waste Management are known to have been directed to BSI by customers or stakeholders.

Next visit objectives, scope and criteria

The objective of the assessment is to conduct a re-assessment of the existing certification to ensure the elements of the proposed scope of registration and the requirements of the management standard are effectively addressed by the organisation's management system.

The scope of the assessment is the documented management system with relation to the requirements of ISO 14001:2015 and the defined assessment plan provided in terms of locations and areas of the system and organisation to be assessed.

Criteria:

- ISO 14001:2015.
- DWM Environmental Management System Manual 30th November 2021.

Please note that BSI reserves the right to apply a charge equivalent to the full daily rate for cancellation of the visit by the organisation within 30 days of an agreed visit date.

Next Visit Plan

Plan to be provided by BSI Assessor prior to next assessment.

Appendix: Your certification structure & ongoing assessment programme

Scope of Certification

EMS 698108 (ISO 14001:2015)

For the management of a waste management facility comprising landfill and compost production operations.

Assessed location(s)

Devonport / EMS 698108 (ISO 14001:2015)

Location reference	0047695802-000
Address	Dulverton Waste Management Dulverton Landfill Level 1, 17 Fenton Way Devonport Tasmania 7310 Australia
Visit type	Continuing assessment (surveillance)
Assessment number	3572553
Assessment dates	30/05/2023
Deviation from Audit Plan	No
Total number of Employees	6
Effective number of Employees	6
Scope of activities at the site	For the management of a waste management facility comprising landfill and compost production operations.
Assessment duration	0.5 day(s)

Latrobe / EMS 698108 (ISO 14001:2015)

Location reference	**0047695802-001**
Address	Dulverton Waste Management 145 Dawson Siding Road Latrobe Tasmania 7307 Australia
Visit type	Continuing assessment (surveillance)
Assessment number	3573785
Assessment dates	30/05/2023
Deviation from Audit Plan	No
Total number of Employees	6
Effective number of Employees	6
Scope of activities at the site	For the management of a waste management facility comprising landfill and compost production operations.
Assessment duration	0.5 day(s)

Certification assessment program

Certificate Number - EMS 698108
Location reference - 0047695802-000

		Audit1	Audit2	Audit3	Audit4
Business area/Location	**Date (mm/yy):**	05/21	05/22	05/23	04/24
	Duration (days):	1	1	1	2
Scope and Policy		X	X	X	X
Organisational context		X		X	X
Leadership and Commitment		X	X	X	X
Management System Support		X		X	X
Planning and Resources		X	X		X
Human Resource Management			X	X	X
Control of Documents and Records		X			X
Objectives / Aspects /Performance Monitoring & Measurement		X	X	X	X
Management Review		X	X	X	X
Internal Audits		X	X	X	X
Actions / Non-Conformity / Incidents / Complaints		X	X	X	X
Risk Management / Prevention		X	X	X	X
Legal and Other Requirements		X	X	X	X
Improvement		X	X	X	X
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Expected outcomes for accredited certification.

What accredited management system certification means?

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Environment Protection Authority

GPO Box 1550 HOBART TAS 7001 Australia

Enquiries: Tim Hamilton
Phone: +61 3 6165 4575
Email: Tim.Hamilton@epa.tas.gov.au
Web: www.epa.tas.gov.au
Our Ref: EN-EM-PE-WG-030921_18 : M625749

7 August 2020

Mr Matthew Layton
Operations & Project Officer
Dulverton Waste Management
1/17 Fenton Way
DEVONPORT TAS 7310

Email: mlayton@dulverton.com.au

Dear Mr Layton

COMPLIANCE ASSESSMENT: ANNUAL ENVIRONMENTAL REVIEW OF DULVERTON LANDFILL 2018-2019

On 12 March 2020 Dulverton Waste Management submitted the Annual Environmental Review (AER) for the period 2018-2019 in compliance with Condition G9 of Permit No. 5931 as varied by EPN 7158/3 (the Landfill Permit).

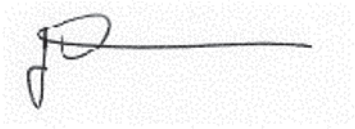
Please find enclosed the results of the compliance assessment. You have been assessed as compliant with Condition G9 of the Landfill Permit.

As allowed by Condition M8 of the Landfill Permit I approve the change in groundwater monitoring bores to those specified in Figure 1 of Attachment C in the letter from GHD reference 3219202 dated 15 May 2020. I note also the use of the surface water sampling sites in Figure 2 of the same document.

I encourage you to continue the recommended investigation of cadmium, chrome and lead on site, and to find suitable background monitoring sites for both groundwater and surface water in the light of the recently published journal article by Burk et al, supplied to you by EPA.

Please contact the EPA on the details provided at the head of this correspondence if you have any queries regarding the above. If you would like to receive a hard copy of this correspondence, please contact this office.

Yours sincerely



Joseph Tranter
ACTING MANAGER, ENVIRONMENTAL OPERATIONS SOUTH
Delegate for the Director, Environment Protection Authority

Cc: mat@dulverton.com.au

Environment Protection Authority

GPO Box 1550 HOBART TAS 7001 Australia

Enclosure

Condition G9 Annual Environmental Review	Evidence	Assessment Date	Comment
1 Unless specified in writing by the Director, a publicly available Annual Environmental Review for the activity must be submitted to the Director each year within 3 months of the end of the reporting period. Without limitation, each Annual Environmental Review must include the following information:	The reporting period ends 26 November each year, so the AER 2018-2019 is due on 26 February 2020. An extension was requested until 13 March 2020 and granted. The AER was submitted on 12 March 2020.	4 June 2020	Compliant
1.1 a statement by the General Manager, Chief Executive Officer or equivalent for the activity acknowledging the contents of the Annual Environmental Review;	A statement signed by Mat Greskie CEO of Dulverton Waste Management is in Section 14 of the AER	4 June 2020	Compliant
1.2 Subject to the *Personal Information Protection Act 2004*, a list of all complaints received from the public during the reporting period concerning actual or potential environmental harm or environmental nuisance caused by the activity and a description of any actions taken as a result of those complaints;	A table of complaints titled Table 6 Corrective Action Register is provided in Section 5 of the AER	4 June 2020	Compliant
1.2 details of environmental-related procedural or process changes that have been implemented during the reporting period;	Section 6 of the AER notes procedural changes to increase monitoring of the leachate, and minimise the volume of leachate pumped off-site to Latrobe WWTP.	4 June 2020	Compliant
1.4 a summary of the amounts (tonnes or litres) of both solid and liquid wastes produced and treatment methods implemented during the reporting period. Initiatives or programs planned to avoid, minimise, re-use, or recycle such wastes over the reporting period should be detailed;	Section 7 of the AER details the volume of liquid waste (leachate) generated. No solid waste generation is reported.	4 June 2020	Compliant
1.5 details of all non-trivial environmental incidents and/or incidents of non compliance with permit or environmental protection notice conditions that occurred during the reporting period, and any mitigative or preventative actions that have resulted from such incidents;	A table in Appendix A of the AER details both environmental and general incidents.	4 June 2020	Compliant
1.6 a summary of monitoring data and record keeping required by these conditions. This information should be presented in graphical form where possible, including comparison with the results of at least the preceding reporting period. Special causes and system changes that have impacted on the parameters monitored must be noted. Explanations of significant deviations between actual results and any predictions made in previous reports must be provided;	There are discrepancies between some groundwater and surface water monitoring points in the Monitoring report compared to the Permit. An explanation was provided, as allowed by the Permit conditions, the groundwater monitoring points in the report are accepted by the Director, and the surface monitoring discrepancies are noted.	4 June 2020	Compliant

1.7 Identification of breaches of limits specified in the conditions and significant variations from predicted results contained in any relevant DPEMP or EMP, an explanation of why each identified breach of specified limits or variation from predictions occurred and details of actions taken in response to each identified breach of limits or variance from predictions;	The content of the monitoring report is largely accepted. The further investigation of the Cd Cr and Pb on site, is encouraged. The establishment of a replacement background surface water site, and the evaluation of the background groundwater bore, in light of the recently published academic paper on the local karst system, is considered essential.	4 June 2020	Compliant
1.8 a list of any issues, not discussed elsewhere in the report, that must be addressed to improve compliance with these conditions, and the actions that are propose to address any such issues;	Section 10 of the AER provides a statement regarding further actions required to improve compliance with the EPN	4 June 2020	Compliant
1.9 a summary of fulfilment of environmental commitments made for the reporting period. This summary must include indication of results of the actions implemented and explanation of any failures to achieve such commitments; and	These issues are dealt with in the report.	4 June 2020	Compliant
1.10 a summary of any community consultation and communication undertaken during the reporting period.	Section 11 of the AER has a statement regarding community consultation	4 June 2020	Compliant

Certificate of Registration

ENVIRONMENTAL MANAGEMENT SYSTEM - ISO 14001:2015

This is to certify that:

Dulverton Waste Management
Dulverton Landfill
Level 1, 17 Fenton Way
Devonport TAS 7310

Holds Certificate Number: **EMS 698108**

and operates an Environmental Management System which complies with the requirements of ISO 14001:2015 for the following scope:

For the management of a waste management facility comprising landfill and compost production operations.

For and on behalf of BSI:

Marc Barnes, Managing Director, BSI Group ANZ

Original Registration Date: 2008-06-15
Latest Revision Date: 2021-08-04

Effective Date: 2021-07-04
Expiry Date: 2024-07-16

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Certificate No: **EMS 698108**

Location	Registered Activities
Dulverton Waste Management Dulverton Landfill Level 1, 17 Fenton Way Devonport TAS 7310	For the management of a waste management facility comprising landfill and compost production operations.
Dulverton Waste Management 145 Dawson Siding Road Latrobe TAS 7307	For the management of a waste management facility comprising landfill and compost production operations.

Original Registration Date: 2008-06-15

Effective Date: 2021-07-04

Latest Revision Date: 2021-08-04

Expiry Date: 2024-07-16

Appendix F

Annual monitoring

Dulverton Environmental Monitoring

DORF Annual Monitoring Report 2022

Dulverton Regional Waste Management Authority

14 February 2023

The Power of Commitment

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Status Code	Revision	Author	Reviewer		Approved for issue		
			Name	Signature	Name	Signature	Date
S5	0	Richard Scott	Sam King		S. Wright		14/02/2023

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1. Introduction

GHD Pty Ltd (GHD) has been engaged by Dulverton Regional Waste Management Authority (DRWMA) to prepare this report presenting the environmental monitoring results for the period January 2022 to December 2022 inclusive, for the Dulverton Organics Recycling Facility (DORF). The DORF is also known as the 'compost' facility and is referred to in this report as the "site". The site is located adjacent to the DRWMA landfill site at Dawson's Siding Road, Latrobe, Tasmania. The site is regulated by Environmental Protection Notice (EPN) 7852/1 (the EPN), issued in November 2015. This is a separate EPN to the landfill's EPN.

GHD has been undertaking monitoring at the site since September 2017. The EPN stipulates regular monitoring of stormwater and groundwater at locations nominated in the EPN at regular intervals. Regular monitoring of DORF (compost) leachate is not currently required by the EPN, which states that "*representative samples of compost leachate need only be collected when a change in raw materials or processes may result in changes to the leachate, or prior to commencement of seasonal irrigation, or when required by the Director.*"

Notwithstanding this, monitoring of DORF leachate was conducted at approximately 6 monthly intervals prior to early 2019. During 2019 GHD was requested by DRWMA to implement a quarterly leachate sampling program at the site. Quarterly leachate sampling has been undertaken for the period covered by this report.

The previous monitoring report for the DORF leachate was prepared by GHD and submitted to DRWMA in January 2022 (DORF Monitoring Report July-December 2021), reporting on results from the period July 2021 to December 2021 inclusive. Prior to January 2019, DORF leachate data was reported within the annual monitoring report for the landfill site, which operates under a separate EPN.

Soil monitoring at the site is also conducted under EPN 7852/1. Under the EPN soil monitoring is required to be undertaken annually. GHD undertook soil monitoring at the site in December 2022. Initially the sampling was planned for October 2022, however it was postponed due to flooding and site access issues.

Soil and leachate monitoring results at the DORF are now reported together with the stormwater and groundwater monitoring results in a single annual report, this report, for EPN 7852/1 for the period of January to December each year.

1.1 Purpose of this report

The principal objective of GHD's engagement, and purpose of this report, is to assess and report the status of water and soil quality at the DORF site through the collection and analysis of water and soil samples. The aim of this soil and water monitoring is to understand potential on-site and off-site impacts of the DORF and its operations by identifying exceedances of EPN limits and other assessment criteria.

1.2 Scope and limitations

To meet the requirements outlined in EPN 7852/1, and address the stated project objectives above, the following scope of works was undertaken:

– Quarterly sampling of leachate and stormwater at nominated points on the site
– Six monthly sampling of groundwater
– One soil sampling event
– Laboratory analysis of all samples by an independent NATA accredited laboratory
– Interpretation of laboratory analysis results
– Prepare a concise technical report summarising the monitoring results (this report)

1.3 Limitations of report

This report has been prepared by GHD for Dulverton Regional Waste Management Authority and may only be used and relied on by Dulverton Regional Waste Management Authority for the purpose agreed between GHD and Dulverton Regional Waste Management Authority as set out in section 1.1 of this report.

GHD otherwise disclaims responsibility to any person other than Dulverton Regional Waste Management Authority arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report at the date of preparation of the report. GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by Dulverton Regional Waste Management Authority and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

The opinions, conclusions and any recommendations in this report are based on information obtained from, and testing undertaken at or in connection with, specific sample points. Site conditions at other parts of the site may be different from the site conditions found at the specific sample points.

Investigations undertaken in respect of this report are constrained by the particular site conditions, such as the location of buildings, services and vegetation. As a result, not all relevant site features and conditions may have been identified in this report.

Site conditions (including the presence of hazardous substances and/or site contamination) may change after the date of this Report. GHD does not accept responsibility arising from, or in connection with, any change to the site conditions. GHD is also not responsible for updating this report if the site conditions change.

GHD has not been involved in the preparation of DWM's EPN submission, and has had no contribution to, or review of the EPN submission other than this Report. GHD shall not be liable to any person for any error in, omission from, or false or misleading statement in, any other part of the EPN submission.

2. Monitoring program

Details of the environmental monitoring of water and soil at the DORF site are presented in this section. The DORF monitoring locations are outlined in Figure 1 (Appendix A) for the different water and soil sample types. The sampling program is based on the requirements of the current site EPN, DRWMA procedures, and GHD's recommendations from previous reports.

2.1 Leachate

The EPN states that samples of DORF leachate must be collected and analysed at the following times:

– When a change in raw materials or processes may result in changes to the leachate
– Prior to the commencement of seasonal irrigation
– When required in writing by the Director, EPA

Quarterly sampling of DORF leachate was implemented at the request of DRWMA. Weekly leachate sampling was conducted during February and March 2022 at the request of DRWMA to understand site conditions and the effect of various waste streams. This sampling frequency is over and above the requirements of the site EPN. The DORF leachate monitoring program is detailed in Table 1 below. The field and laboratory analysis parameters adopted for the weekly leachate sampling were the same as those adopted for the quarterly sampling detailed in Table 1.

Table 1 DORF leachate monitoring program

Frequency	Parameters
Three monthly (quarterly)	Field parameters: Temperature, pH, EC, Dissolved Oxygen, Oxidation-Reduction Potential
	Laboratory Analysis: Alkalinity, Total Nitrogen, Ammonia, Nitrate, Nitrite, Total Phosphorus, Biological Oxygen Demand, Total Cyanide, Chloride, Sulphate, Sodium, Potassium, Magnesium, Total Petroleum Hydrocarbons*, Dissolved/Total metals** (Iron, Aluminium, Copper, Zinc, Chromium, Manganese, Nickel, Lead, Cadmium, Arsenic, Mercury, Selenium)

*Silica gel clean up on all samples with TRH concentrations above laboratory limits of reporting has been added to the program, as per recommendations outlined in the 2021 DORF Annual Monitoring Report.

**Dissolved metals have been used recently for assessment purposes as these values are considered to be more conservative. However, as the EPN assumes metal values are total values, total metals have been added to the program.

2.2 Stormwater

Stormwater monitoring at the DORF consists of sampling at monitoring point S10 when it is flowing. The DORF stormwater monitoring program is detailed in Table 2 below.

Table 2 DORF stormwater monitoring program

Frequency	Parameters
Three monthly (quarterly)	Field parameters: Temperature, pH, EC, Dissolved Oxygen, Oxidation-Reduction Potential
	Laboratory Analysis: pH, biological oxygen demand, total suspended solids, electrical conductivity, total nitrogen, ammonium, oxides of nitrogen, total phosphorus, dissolved free phosphorus
Six monthly	Total metals (Fe, Cu, Zn, Cr, Mn, Ni, Pb, Cd) Dissolved metals (Fe, Cu, Zn, Cr, Mn, Ni, Pb, Cd)

2.3 Groundwater

Groundwater monitoring at the DORF consists of monitoring at groundwater bore B8 on a six-monthly basis, in line with groundwater sampling at the landfill site. The DORF groundwater monitoring program is detailed in Table 3. Details of groundwater bore B8 are provided in Table 4.

Table 3 DORF groundwater monitoring program

Frequency	Parameters
Six monthly	Field parameters: Temperature, pH, electrical conductivity, Dissolved Oxygen, Oxidation-Reduction Potential
	Laboratory Analysis: Major ions (calcium, magnesium, potassium, sodium, chloride, sulphate, bicarbonate), bromide, iodide, biological oxygen demand, total dissolved solids, conductivity, total nitrogen, ammonium, oxides of nitrogen, total phosphorus, dissolved free phosphorus, iron (total and dissolved), dissolved metals* (Copper, Zinc, Chromium, Manganese, Nickel, Lead, Cadmium, Arsenic, Mercury, Selenium)

*Dissolved metals have been used recently for comparison to assessment criteria and are considered to be more conservative. The EPN does not specify dissolved or total metals for groundwater monitoring.

Table 4 B8 bore details

Bore ID	Easting	Northing	Total Depth	Screened from (mBG)	Screened to (mBG)	Screened lithology	Location and purpose
B8	448967	5429085	18.92	17	19	Sandstone/ limestone	Southwest corner of the landfill and down gradient of the composting site

2.4 Soil

Soil monitoring at the DORF consists of annual monitoring of the compost leachate irrigation area. GHD commenced soil sampling at the site in February 2020. Prior to this, it is understood that DRWMA personnel undertook annual soil sampling at the site. Following the February 2020 sampling event, GHD recommended that sampling is carried out in Spring after a period of rainfall and /or leachate irrigation.

The DORF soil monitoring program is detailed in Table 5.

Table 5 DORF soil monitoring program

Frequency	Parameters
Annually	Laboratory Analysis: Electrical conductivity, Arsenic, Cadmium, Copper, Lead, Mercury, Nickel, Selenium, Zinc, Magnesium, Potassium, Chlorine, Calcium

3. Methodology

3.1 Stormwater, groundwater and leachate

Sampling and analyses of stormwater, groundwater, and leachate, was carried out in accordance with the relevant Australian Standards. The methodology and guidelines for the sampling are outlined in the sampling and analysis plan which is attached in Appendix B.

3.2 Soil

Soil sampling was carried out in accordance with the following documents:

– EPN 7852/1
– DORF Irrigation Soil Sampling Work Instruction (WI158) (prepared by DRWMA in general accordance with the EPN)
– Recommendations from the 2021 DORF monitoring report

The EPN requires samples to be collected at a rate of 2 composite samples per irrigated hectare. It is estimated that the total irrigation area is five (5) hectares. To facilitate sampling, the irrigation area has been divided into five sampling “areas” to generally align with the location of the irrigation lines (see Figure 3-1 below).

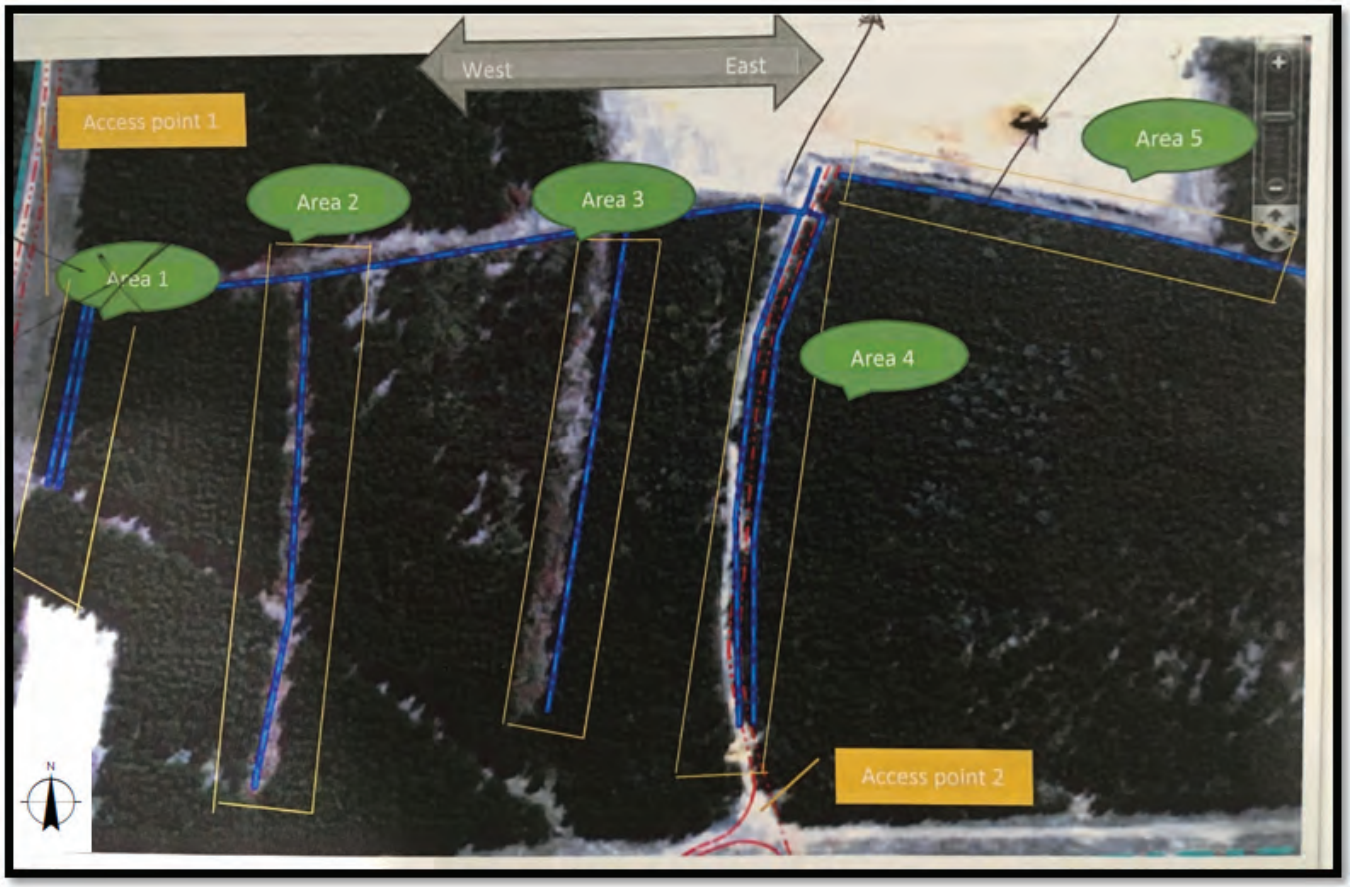

Figure 1 DORF irrigation area showing irrigation lines and sampling areas

Of the five irrigation areas, Areas 2, 3 and 4 irrigate both sides of the irrigation lines (east and west), and Area 5 only irrigates to the southern side., Area 1 is understood to no longer be used for irrigation based on advice from DRWMA site personnel.

3.2.1 Soil Monitoring Program

Soil samples were collected on 13th December 2022. A total of 12 samples were collected and sent for analysis (10 primary samples, consisting of four discrete and six composite samples, plus two quality control samples).

Sample depth was approximately 0.15 m below ground level. Samples were collected by hand (assisted by the use of a mattock and / or trowel) using fresh nitrile gloves, and placed into appropriately labelled laboratory supplied jars. Samples were placed in a chilled esky and air freighted to ALS (Melbourne), a NATA accredited laboratory, for analysis of the analytes required by the EPN.

For each of the Areas 2, 3 and 4, a total of 10 samples were taken at relatively evenly spaced locations along each side (east and west) of the irrigation lines. Each of the 10 “east” and 10 “west” samples were mixed thoroughly to form one east and one west composite sample for each area.

At the time of collecting samples, Areas 1 and 5 had recently been cleared and had therefore undergone significant soil disturbance, with irrigation infrastructure removed. Area 5 is normally irrigated on one side only (southern side). Advice from DRWMA personnel indicated that no irrigation had occurred at Area 5 since clearing, and as no run-off drains to this area, no soil testing was conducted at Area 5.

Information obtained from DRWMA site personnel indicated that Area 1 is no longer used for irrigation; however, as the surface drainage grades towards Area 1, 2 samples were obtained from that area to assess any potential residual contamination (Areas 1a and 1b, Figure 1, Appendix A).

As per the previous reporting period (2021), two background samples were obtained from the area near sampling site S3 (north of the site) for comparison.

3.3 Monitoring frequency

Monitoring undertaken by GHD for this report occurred in:

– February 2022 – Leachate (two monitoring events)
– March 2022 – Groundwater and leachate
– June 2022 -Stormwater and Leachate
– September 2022 – Groundwater and leachate
– December 2022 – Soil and Leachate

Note that while stormwater is part of the quarterly sampling program (March, June, September, December), the stormwater site (S10) was dry during each sampling occasion with the exception of June 2022.

4. Site assessment results

Field and analytical results for DORF leachate, stormwater, groundwater, and soil, are discussed in this section. For reference, field notes are provided in Appendix C, and analytical summary tables are provided in Appendix D. Original laboratory reports presenting the analytical results for the DORF, and laboratory quality assurance and quality control data, are presented Appendix E.

4.1 Assessment criteria

4.1.1 Stormwater, groundwater, and leachate

The trigger values used for assessment of the site water (stormwater, groundwater, and leachate) monitoring results are consistent with those used previously for both the DORF and landfill sites, and are listed as follows:

- ANZG (2018) Trigger values for freshwater aquatic ecosystems with a level of protection for 95% of species **(ANZG95%)**
- National Health and Medical Research Council Primary Health and Contact, 2011 which is taken from the Australian Drinking Water Guidelines 2011 **(Health)**
- ANZECC & ARMCANZ (2000) Irrigation Long Term Trigger Values **(LTV),** Irrigation Short Term Trigger Values **(STV)**
- ANZECC & ARMCANZ (2000) Stock and Domestic **(S&D)**

DORF leachate pond water results have also been compared against Table 3 of the EPN (Irrigation Area Limits), as these values specify limits for irrigation of the leachate pond water.

4.1.2 Soil

Soil analysis results have been assessed against the following guidelines:

DPIWE (2002) Environmental Guidelines for the Use of Recycled water in Tasmania (Table 4.2, Recommended Maximum Concentrations of Metals in Irrigation Waters)

These are the guideline values referred to in Table 3 (column 5) of the EPN. This table is based upon ANZECC 2000 Irrigation Long and Short-term Trigger Values, which are the standards to which the data have been applied.

Guideline values are provided for metals only. Values given are in kilograms per hectare, and these have been converted to milligrams per kilogram (or ppm) to align with the unit of reporting in the laboratory reports, using the following calculation from Poon & Schmidt (2010)[1]:

If sample depth was 0.30 m (30 cm or 1 foot),
then Value in ppm = Value in kg/ha ÷ 3.0
Rationale: Value in ppm = Value in kg/ha ÷ (1 kg/10^6 mg) ÷ (1000 kg/m^3, bulk density) ÷ (0.30 m x 10^4 m^2/ha)

An assumed sample depth of 0.15 m and a soil bulk density of 1300 kg/m^3 was used, which is consistent with the assumptions in the DPIWE guidelines.

NEPM 2013 Schedule B (1) - Guideline on Investigation Levels for Soil and Groundwater, Table 1A(1)

Table 1A(1) presents Health Investigation Levels (HILs) for soil contaminants for a range of land uses. The HILs are scientifically based, generic assessment criteria designed to be used in the first stage (i.e. screening) of an

[1] Poon, D. and Schmidt, O. 2010. *Understanding Different Soil Test Methods*. Nutrient Management Factsheet – No. 3 in Series. Ministry of Agriculture and Lands, British Columbia.

assessment of potential risks to human health from chronic exposure to contaminants. They are intentionally conservative and are based on a reasonable worse-case scenario for specific land use settings.

The HILs for commercial/industrial land use have been adopted.

4.2 Leachate monitoring results

4.2.1 Field parameters

Field results for the DORF leachate pond are presented in Table 6. Field notes are provided in Appendix C.

Table 6 DORF leachate dam field parameters

Date	Temperature (°C)	pH	EC (µS/cm)	Dissolved Oxygen (ppm)	Oxy Redox Potential
28/3/2022	19.3	7.70	9905	0.41	-22.8
07/06/2022	8.1	7.75	3216	No reading	-176.5
26/09/2022	13.4	6.11	4519	2.76	-110.3
14/12/2022	19.8	7.48	4133	0.64	-125.4

The pH levels in the leachate pond remained fairly neutral. EC exceeded the EPN limit of 2,300 µS/cm during all sampling events, but was slightly lower on average than the previous monitoring period (2021).

4.2.2 Analytical results

Analytical results for the DORF leachate monitoring program have been compared against the referenced criteria. The results and the adopted criteria are presented in summary Tables 1 and 2 in Appendix D.

Analytical results for the 2022 reporting period that are in exceedance of assessment criteria are summarised in Table 7. Exceedances from the previous reporting period have been included for comparison. Further detail on the exceedances (including severity and number of sampling events) is presented in the summary tables in Appendix D where exceedances are highlighted in the data.

Filtered metals have been used in this report as they are required for comparison against trigger levels.

Table 7 DORF leachate exceedances against trigger levels for the 2022 reporting period, in comparison to the previous reporting period

Reporting Period	ANZG95%	ADWG 2011 Health	ANZECC 2000 Irrigation - LTV	ANZECC 2000 Irrigation - STV	S&D	EPN 7852/1 Irrigation Limits**
January – December 2021	Cyanide, Ammonia, Al, As, Ni, Zn, Cr*, Cd, Cu, Pb, Mn	Pb, Mn, As, Ni, Toluene	Fe, Mn, Chloride, Al	Total N, Total P, Fe	Al	BOD
January - December 2022	Cyanide, Ammonia, Al, As, Cd, Cr*, Zn, Toluene	Pb, Mn, Ni	Chloride, Al, Cu,	Total N, Total P, Fe		BOD

*Cr III + VI

**The EPN limit for BOD is 75 mg/L.

Table 7 shows that exceedances for the DORF leachate for the 2022 reporting period are similar to the previous reporting period, with continued elevation in nutrients, chloride, nickel, arsenic, and iron levels. One minor exceedance of the ANZG (2018) guidelines for cyanide was noted in February 2022. BOD levels have remained elevated and appear to be fluctuating when compared to historical results.

Similar to the 2021 monitoring period, toluene began to spike in September, and was recorded at 508 µg/L in the December monitoring round, which is lower than the 1,050 µg/L recorded in September 2021. The cause of the spikes is unknown, though will continue to be monitored.

Total recoverable hydrocarbon (TRH) levels (C_{10}-C_{40} fraction) remain elevated, and levels appear to be fluctuating. In response to elevated TRH levels and a recommendation from the 2021 monitoring report, silica gel clean-up was performed at the laboratory at every monitoring round to determine the level of organic hydrocarbons in the leachate in comparison to the levels of petroleum hydrocarbons. Following silica gel clean-up, TRH levels reduced significantly to below laboratory limits of reporting, indicating little or no presence of petroleum hydrocarbons in leachate. It is recommended that silica gel clean-up of TRH continue to be performed on leachate samples during future monitoring events.

Generally, levels of all contaminants of potential concern (CoPC) in the leachate pond appear to fluctuate, possibly due to seasonality, and no significant increases over the reporting period were noted.

4.3 Stormwater monitoring results

One sample was taken from stormwater site S10 in June 2022. The site only flows immediately after a significant rainfall event and was dry during all other sampling events. Discharge from S10 flows through a series of drains to a stormwater pond on site (S7). Table 8 summarises the exceedances against trigger levels during the reporting period. A summary of stormwater data is provided in Tables 3 and 4 in Appendix D.

*Table 8 Stormwater exceedances against trigger levels**

Reporting Period	ANZG95%	ADWG 2011 Health	ANZECC 2000 Irrigation - LTV	ANZECC 2000 Irrigation - STV	S&D
2022	Ammonia	-	-	Total N, Total P	-

*Limits for metals assume dissolved metal concentrations

Results from the March 2019 to June 2020 reporting period indicated that the water quality at S10 was similar to the leachate pond. It was suggested that this was due to runoff from the irrigation area entering the S10 sample point following a period of high rainfall. It was recommended that during future sampling events at S10, the direction of water flow should be noted in order to assist in potentially determining if stormwater is flowing from the DORF site (south west) or from the irrigation area (south east).

During the October 2021 monitoring round, it was observed that the stormwater flow was from the DORF site (south west). Subsequently, a significant reduction in contaminants was noted when compared to the 2019 and 2020 monitoring events. During the June 2022 monitoring round, the stormwater flow was also determined to be originating from the DORF site.

4.4 Groundwater monitoring results

4.4.1 Field parameters

Field results for DORF groundwater bore B8 are presented in Table 9 below. Field notes are provided in Appendix C.

Table 9 Groundwater field parameters at B8

Date	Temp (degrees C)	pH	EC (uS/cm)	Dissolved Oxygen (ppm)	Oxy Redox Potential
28/03/2022	16.8	7.03	565	1.74	25.9
26/09/2022	13.8	6.69	569	1.98	16.0

4.4.2 Analytical results

Analytical results for the 2022 reporting period for groundwater that are in exceedance of the assessment criteria are summarised in Table 10. Exceedances from the previous reporting period have also been included for comparison. Further detail on the exceedances (including severity and number of sampling events) is presented in summary Tables 5 and 6 in Appendix D where exceedances are highlighted in the data.

*Table 10 DORF groundwater exceedances against trigger levels for the 2022 reporting period, in comparison to the previous reporting period**

Reporting Period	ANZG95%	ADWG 2011 Health	ANZECC 2000 Irrigation - LTV	ANZECC 2000 Irrigation - STV	S&D
January – December 2021	Cu, Zn	-	Total P	-	-
January – December 2022	-	-	Total N, Total P, Fe,	-	-

*Limits for metals assume dissolved metal concentrations

Table 10 shows that exceedances for the DORF groundwater for the 2022 reporting period are consistent with the previous reporting period in relation to Total Phosphorus only. ANZECC Irrigation Long-Term Trigger Value was the only assessed standard to be exceeded. When compared with 2020 results, 2022 exceedances are similar.

4.5 Soil monitoring results

4.5.1 Field observations

The material sampled mostly consisted of silty sandy clay. Some areas contained gravel, cobbles, blue metal and / or large rocks. Field notes are provided in Appendix C. Ground conditions were assessed as medium moisture, despite heavy rainfall through spring.

The irrigation area is densely covered with stands of Radiata Pine (*Pinus radiata*). Some trees appeared to be in poor health, as noted during the previous sampling event with no evidence of serious decline. The reason for this is unknown, but tree health should continue to be monitored.

At the time of sampling, Areas 1 and 5 had been logged and the ground heavily disturbed. Two discrete samples were taken at Area 1, while Area 5 was unable to be sampled due to excessive ground disturbance, with the top meter of soil having been excavated. It is understood from verbal advice provided by DRWMA Staff that no irrigation had occurred at Area 5 since the area had been cleared.

4.5.2 Analytical results

Analytical results for the soil sampling program have been compared against the referenced criteria, and both the results and the adopted criteria are presented in summary Tables 7 and 8 in Appendix D. The quality control summary is provided in Table 9 of Appendix D.

All results were within the assessment criteria, which is consistent with the previous reporting period.

EC, potassium, sodium, chloride, arsenic, copper, lead, and nickel, and zinc were notably higher in the irrigation area soil samples compared to the background sample results, which is consistent with previous results.

4.6 Quality Control

Quality control samples were not required for leachate, stormwater, or groundwater sampling at the DORF due to the small number of samples obtained. Quality control samples are obtained as part of the wider surface and groundwater monitoring program conducted at the landfill site.

Quality control samples were obtained during soil sampling. Lab and inter-lab duplicates were obtained from primary sample “BG01” (QC1, QQC1) and the precision of the data assessed by calculating the Relative Percentage Difference (RPD) using:

$$RPD(\%) = \frac{|C_o - C_d|}{C_o + C_d} \times 200$$

Table 9 in Appendix D presents calculated RPD’s for the quality control samples.

GHD generally adopts nominal acceptance criteria of 30% and 50% RPD for field duplicates of inorganics and organics, respectively. No RPD exceedances were detected during this monitoring round. Furthermore, laboratory quality control information was reviewed, and no issues were identified.

5. Conclusion and Recommendations

Site assessment results for the DORF for 2022 were generally consistent with previous monitoring results. Recommendations on DORF monitoring frequency and implementation of the program are outlined below.

5.1 Monitoring frequency

Future monitoring events at the DORF site should continue at the current frequency, as detailed in Section 2, unless any changes are required due to site conditions at the time of sampling, or changes to EPN conditions.

Parameters will continue to be sampled according to the requirements of the EPN and any changes / additions that have been implemented since it was issued, and relevant standards.

5.2 Monitoring program

5.2.1 Groundwater

B8 should continue to be reported as part of the DORF Monitoring Program going forward.

A general condition assessment of all bores should continue to be undertaken during monitoring. This should consider the condition of the surface seal, if the bores have caps, and if any need to be labelled. If required, the bores should be fixed appropriately.

5.2.2 Leachate

Recommendations made in the March 2019 to June 2020 report to include both total and filtered metals in the sampling suite was implemented in December 2020. This was to satisfy EPN requirements and to facilitate comparison against adopted assessment criteria. Both total and filtered metals in the sampling suite should continue going forward.

It is recommended that silica gel clean-up of TRH continue to be performed on leachate samples during future monitoring events to determine whether the origin of TRH concentrations is organic or petroleum-based. Toluene levels in leachate should continue to be monitored for any spikes or increasing trends.

5.2.3 Stormwater

It is recommended that during future sampling events at S10, the direction of water flow should continue to be noted in order to assess if stormwater is flowing from the DORF site (south west) or from the irrigation area (south east).

It is also recommended, as per the previous report, that proactive sampling at S10 be conducted where possible due to this site being mostly dry during quarterly sampling events. It is suggested that DRWMA personnel monitor the location following high rainfall events and notify GHD if water is flowing at the S10 sample site. GHD may attend the site to take a sample or instruct DRWMA staff to take a sample which will then be forwarded to the laboratory for analysis.

5.2.4 Soil

The following recommendations should be continued for future monitoring events:

- Continue sampling during a time when the area is being irrigated, or shortly after a period of irrigation (e.g. spring). This will assist with sample collection and ensuring the data reflects an assessment of operational site conditions.
- Continue sampling using the current methodology (composite with targeted discrete samples as appropriate).
- During each sampling event, obtain 1-2 background soil samples for comparison.
- Continue to monitor tree health during sampling events for any signs of obvious decline.
- Future reports should be compared to any previous data for the site, where available.

Appendices

Appendix A

Figure 1

LEGEND

Sample Type

- Discrete Soil
- Groundwater Bore
- Leachate Pond
- Stormwater
- Surface Water

Key Site Area

- Irrigation
- Landfill
- Leachate Pond
- DORF

1:5,000 @ A3

0 50 100 150 200

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

GHD

Dulverton Landfill
Dulverton Landfill Monitoring

Job Number	3219202
Revision	A
Date	13 Jan 2021

DORF Monitoring Locations

Figure 1

N:\AU\Launceston\Projects\32\19202\GIS\Maps\Deliverables\3219202_Discrete Soil Sampling_102_A3_P.mxd

Data source: Data Custodian, Data Set Name/Title, Version/Date. Created by:tjohnson

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Appendix B

Sampling and Analysis Plan

Appendix A – Sampling and analysis plan

Data Quality Objectives

The purpose of establishing Data Quality Objectives (DQOs) is to ensure that the field investigations and subsequent analyses are undertaken in a way that enables the collection and reporting of reliable data on which to base the assessment.

A process for establishing DQOs for a site has been defined by the US EPA. That process has been adopted within the Australian Standard: AS 4482.1-2005 and referenced by the *National Environment Protection (Assessment of Site Contamination) Measure* (NEPC, 1999). The DQO process was taken into account in designing the scope of work carried out over the course of the program.

Investigation Strategy

The works include monitoring of all groundwater bores and surface water sites and leachate ponds associated with the DORF.

Groundwater Investigation

Groundwater samples will be collected in accordance with the following guidelines:

- *AS/NZ 5667.1:1998*: Water Quality – Sampling. Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples. Standards Australia, New South Wales; and
- *AS/NZ 5667.11:1998:* Water quality – Sampling. Part 11: Guidance on sampling of groundwaters. Standards Australia, New South Wales.
- Groundwater Sampling

Groundwater sampling and analysis will be conducted on all existing monitoring bores as follows:

- The standing water level and LNAPL thickness (if present) gauged using an electronic interface probe;
- Bores which do not contain LNAPL will be purged and sampled using either pre-installed waterra inertial tubing or with clean, disposable bailers or hydrasleeves. During sampling, field parameters (pH, electrical conductivity (EC), oxidation-reduction potential (redox), dissolved oxygen (DO) and temperature) will be recorded. The presence of a sheen or odour will be noted;
- When field parameters (i.e. pH and EC) reach equilibrium (i.e. consecutive measurements within 10% of each other), or three well volumes are purged, a groundwater sample will be collected directly from the dedicated waterra tubing, bailer or hydrasleeve;
- The groundwater samples will be immediately placed into laboratory prepared bottles suitable for the required analyses. The sample containers will be labelled with the job number, sample identification, date collected and sampler's initials;
- Sample bottles will be immediately transferred to an ice filled cooler for preservation prior to being transported to the contract laboratory. Samples will be accompanied with chain of custody documentation to the project laboratory;
- Groundwater samples will be submitted for laboratory analysis in accordance with the EPN 7852/1; and
- Quality assurance / quality control sampling will include one blind duplicate and one split duplicate (where necessary).

Surface Water Investigation

Surface water samples (including leachate) will be collected in accordance with the following guidelines:

- *AS/NZ 5667.1:1998*: Water Quality – Sampling. Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples. Standards Australia, New South Wales; and
- *AS/NZ 5667.6:1998:* Water quality – Sampling. Part 6: Guidance on sampling of rivers and streams. Standards Australia, New South Wales.

Surface Water Sampling

Surface water sampling and analysis will be conducted as follows:

- Samples will be collected from leachate and surface water using laboratory supplied bottles and preservatives suitable for the selected analysis.
- The surface water and leachate samples will be immediately placed into laboratory prepared bottles suitable for the required analyses. The sample containers will be labelled with the job number, sample identification, date collected and sampler's initials;
- Sample bottles will be immediately transferred to an ice filled cooler for preservation prior to being transported to the contract laboratory. Samples will be accompanied with chain of custody documentation to the project laboratory;
- Surface water and leachate samples will be submitted for laboratory analysis in accordance with the EPN 7852/1; and
- Quality assurance / quality control sampling will include one blind duplicate and one split duplicate (where necessary).

Appendix C

Field notes

Purging and Sampling Record

~~Bore~~ ID: Compost Leachate

Job Information

Client: Dulverton
Project:
Proj. No.: 12564388
Sampler:
Date: 26/9/22
Round

Sampling Information

Purge Method:
Sample Method:
WQ Meter Type:
Flow Cell: Y / N Pump Depth:.....m
WLevel Meter Type: Dip / Fox / Int.Fce / Gge
Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information

SWL(mbTOC): ..... m Logic Check: .....
Screen: From:.....to..... m Stick Up: ..... m
NAPL Check:..... Bore Diam.: ..... mm
Ref.datum: ..... Well Cap Secure?.....
Bore Depth: ..... m

Time (.....)	Volume (L)	Temp (°C)	pH (pH units)	Elec.Cond (.....)	Dis.Oxygen (.....)	Ox-Red Pt. (± mV)	SWL (m TOC)	(TDS .....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		-	*+/- 0.05 pH*	*+/- 3%*	*+/- 10%*	*+/- 10 mV*	*stable*		
1·24		13·4	6·11	4519	2·76	-110·3		3770	

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters / Preservatives	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: B8

Job Information
Client: DRWMA
Project:
Proj. No.: 12584388
Sampler: SK / RS
Date: 26/9/22
Round

Sampling Information
Purge Method:
Sample Method:
WQ Meter Type:
Flow Cell: Y / N Pump Depth:.....m
WLevel Meter Type: Dip / Fox / Int.Fce / Gge
Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information
SWL(mbTOC): WRW 8.61 m Logic Check:
Screen: From:.....to..... m Stick Up: ..... m
NAPL Check: Bore Diam.: ..... mm
Ref.datum: Well Cap Secure?.....
Bore Depth: 19.21 m

Time (.....)	Volume (L)	Temp (°C)	pH (pH units)	Elec.Cond (µS/cm)	Dis.Oxygen (.....)	Ox-Red Pt. (± mV)	SWL (m TOC)	TDS (.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		-	+/- 0.05 pH	+/- 3%	+/- 10%	+/- 10 mV	stable		
1400	20	13.9	6.65	575	1.59	34.3		474.50	Thick brown sediment, then clearer.
1405	30	13.8	6.74	570	3.64	25.7		468.00	
1407	40	13.8	6.66	571	1.70	19.5		474.50	
1408	50	13.8	6.66	570	1.70	16.8		468.00	
1410	64	13.8	6.69	569	1.98	16.0		468.00	

Field QA Checks:
Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters / Preservatives	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Purge Volumes
Casing Int. Dia (mm) 50 100 150
Vol (L/m of casing) 2.0 7.9 17.7
*Double for gravel pack

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GHD MANAGEMENT ENGINEERING ENVIRONMENT

Purging and Sampling Record

Bore ID: Compost Leachate

Job Information	Sampling Information	Bore Information
Client: DRMAWMA	Purge Method:.....	SWL: ..... m Logic Check: .....
Proj. No.: 12564388	Sample Method:.....	Screen: From:.....to..... m Stick Up: ..... m
Sampler: RS	WQ Meter Type: YSI Pro	NAPL Check:..... Bore Diam.: ..... mm
Date: 14/12/22	Flow Cell: Y / N Pump Depth:.....m	Ref.datum: ..... Well Cap Secure?.....
Round	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: ..... m
	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	Temp (°C)	pH (pH units)	Elec.Cond (MS/cm	Dis.Oxygen (mg/L	Ox-Red Pt. (± mV)	SWL (m)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when 3 consecutive readings			+/- 0.05 pH	+/- 3%	+/- 10%	+/- 10 mV	stable		
		19.8	7.48	4133	0.64	-125.4			

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

GHD MANAGEMENT ENGINEERING ENVIRONMENT

Purging and Sampling Record

Bore ID: Compost leachate.

Job Information	Sampling Information	Bore Information
Client: DWMI	Purge Method:.....	SWL: ..... m Logic Check: .....
Proj. No.: 12564388	Sample Method:.....	Screen: From:.....to..... m Stick Up: ..... m
Sampler: RS	WQ Meter Type: YSI Pro	NAPL Check:..... Bore Diam.: ..... mm
Date: 7/6/22	Flow Cell: Y / N Pump Depth:.....m	Ref.datum: ..... Well Cap Secure?.....
Round	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: ..... m
	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	Temp (°C)	pH (pH units)	Elec.Cond (.....)	Dis.Oxygen (.....)	Ox-Red Pt. (± mV)	SWL (m)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable w/in 3 consecutive readings			+/- 0.05 pH	+/- 3%	+/- 10%	+/- 10 mV	Stable		
11:15	7/6	8.1	7.75	3216	NR	-176.5			Dark brown/grey, strong organic odour.

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

GHD MANAGEMENT ENGINEERING ENVIRONMENT

Purging and Sampling Record

Bore ID: Compost Leachate.

Job Information	Sampling Information	Bore Information
Client: DRUMA	Purge Method: -	SWL: ..... m Logic Check: .....
Proj. No.: 12564388	Sample Method:	Screen: From:.....to..... m Stick Up: ..... m
Sampler: MH	WQ Meter Type: YSI Pro	NAPL Check:..... Bore Diam.: ..... mm
Date: 28/3/22	Flow Cell: Y / N Pump Depth:.....m	Ref.datum: ..... Well Cap Secure?.....
Round	WLevel Meter Type: Dip / Fox / Int.Fce / Gge	Bore Depth: ..... m
	Field Filtered? Y / N (filter vessel, disposable filter/syringe)	

Time (.....)	Volume (L)	Temp (°C)	pH (pH units)	Elec.Cond (.....)	Dis.Oxygen (.....)	Ox-Red Pt. (± mV)	SWL (m)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable WHEN 3 consecutive readings			+/- 0.05 pH	+/- 3%	+/- 10%	+/- 10 mV	stable		
13:00	28/3/22	19.3	7.70	9905	0.41	-22.8			Dark, viscous liquid, foul odour.

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

DORF stormwater

GHD | MANAGEMENT ENGINEERING ENVIRONMENT

Purging and Sampling Record

Bore ID: S10

Job Information

Client: DRWMA

Proj. No.: 12564388

Sampler: RS

Date: 7/6/22

Round .....

Sampling Information

Purge Method:.....

Sample Method:.....

WQ Meter Type: YSI Pro

Flow Cell: Y / N Pump Depth:.....m

WLevel Meter Type: Dip / Fox / Int.Fce / Gge

Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information

SWL: ..... m Logic Check: .....

Screen: From:.....to..... m Stick Up: ..... m

NAPL Check:..... Bore Diam.: ..... mm

Ref.datum: ..... Well Cap Secure?.....

Bore Depth: ..... m

Time (.....)	Volume (L)	Temp (°C)	pH (pH units)	Elec.Cond (µS/cm)	Dis.Oxygen (.....)	Ox-Red Pt. (± mV)	SWL (m)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when 3 consecutive readings			+/- 0.05 pH	+/- 3%	+/- 10%	+/- 10 mV	stable		
11:38	S10	7.7	7.90	930	2.34	2.4			Dark brown, no odour

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N

Decontamination as per GHD procedure? Y / N

Was sampling equipment pre-cleaned? Y / N

COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

Purging and Sampling Record

Bore ID: B8

Job Information

Client: DWM
Project: GW+SW quarterly
Proj. No.: 12564388
Sampler: MH
Date: 28/3/22
Round

Sampling Information

Purge Method: Waterra
Sample Method:
WQ Meter Type: 451 Pro
Flow Cell: Y / N Pump Depth: m
WLevel Meter Type: Dip / Fox / Int.Fce / Gge
Field Filtered? Y / N (filter vessel, disposable filter/syringe)

Bore Information

SWL(mbTOC): 11.40 m Logic Check:
Screen: From: to: m Stick Up: m
NAPL Check: Bore Diam.: mm
Ref.datum: Well Cap Secure?
Bore Depth: 19.39 m

Time (.....)	Volume (L)	Temp (°C)	pH (pH units)	Elec.Cond (.....)	Dis.Oxygen (.....)	Ox-Red Pt. (± mV)	SWL (m TOC)	(.....)	Comment: Colour, turbidity, sediment load, sheen, odour, flow rate, purged dry?
Stable when (3 consecutive readings):		-	*+/- 0.05 pH*	*+/- 3%*	*+/- 10%*	*+/- 10 mV*	*stable*		
13:28	10	17.6	7.26	578	2.40	15.4			Slightly opaque
13:35	20	17.0	7.15	572	2.20	23.5			opaque/slightly cloudy.
13:43	30	17.0	7.11	569	2.07	24.5			" "
13:51	40	16.5	7.10	565	1.86	24.4			" "
13:56	48	16.8	7.03	565	1.74	25.9			
									SAMPLED

Field QA Checks:

Air bubbles in vials? Y / N Any violent reactions? Y / N
Decontamination as per GHD procedure? Y / N
Was sampling equipment pre-cleaned? Y / N
COC updated? Y / N

Parameters	BTEX	TPH	PAH	CHC	PCB	OCP	OPP	Tot. Metal	Biol.				
Preservatives													

Comment: Duplicate samples collected, bottles used, access, condition of headworks etc

Purge Volumes

Casing Int. Dia (mm)	50	100	150
Vol (L/m of casing)	2.0	7.9	17.7

*Double for gravel pack

46A

13/12/21

Irrigation Area Soil Sampling

Area 1 cleared vegetation.

Samples: Area 2E & Area 2W, area 1a, 1b

2: Dark brown/black clay, med moisture.

3: Pale to dark brown soil w. minor rootlets, some alluvial cobbles, med-high moisture

4. Yellow brown clay with rocks, low moisture.
↑ moisture content to west.

5. Yellow brown clay with weathered rocks, low moisture

QC1, QQC1 taken at B01

Appendix D

Summary Tables

Table 1
2022 Leachate Summary

	NA		Inorganics		Cyanide	Acidity & Alkalinity		Major Ions				
Table 1: 2022 Leachate Summary	Naphthalene (value used in F2 calc)	Phosphorus reactive (as P)	pH (Lab)	Electrical conductivity (lab)	Cyanide (Total)	Alkalinity (Bicarbonate as CaCO3)	Alkalinity (total as CaCO3)	Calcium (filtered)	Magnesium (filtered)	Potassium (filtered)	Sodium (filtered)	Chloride
	mg/L	MG/L	pH units	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	0.005	0.01	0.01	1	0.004	1	1	1	1	1	1	1
ADWG 2011 Health (v3.7 updated 2022)					**0.08**							
ANZG (2018) - FW - 95% (updated 26 July 2021)					0.007							
ANZECC 2000 - Stock Watering								1,000				
ANZECC 2000 Irrigation - Long-term Trigger Values			6-9	2,900								350
ANZECC 2000 Irrigation - Short-term Trigger Values												

Date	**Field ID**	**Lab Report Number**											
8/02/2022	Compost Leachate	EM2201937	-	-	-	-	<0.004	3,860	3,860	109	97	1,820	1,040	1,380
15/02/2022	Compost Leachate	EM2202517	-	-	7.77	10,600	0.010	3,810	3,810	94	88	1,980	982	1,420
22/02/2022	Compost Leachate	EM2203000	-	-	7.66	11,900	<0.004	4,580	4,580	112	74	1,820	1,070	1,690
1/03/2022	Compost Leachate	EM2203580	-	-	7.89	7,610	<0.004	2,810	2,810	85	65	1,190	742	1,020
8/03/2022	Compost Leachate	EM2204301	-	-	7.45	10,200	<0.004	3,600	3,600	111	73	1,400	880	1,220
15/03/2022	Compost Leachate	EM2204658	-	-	7.46	9,790	<0.004	693	693	57	36	1,650	968	1,320
28/03/2022	Compost Leachate	EM2205592	-	-	-	-	<0.004	3,820	3,820	101	57	1,500	888	1,310
7/06/2022	Compost Leachate	EM2210925	-	-	-	-	<0.004	1,270	1,270	63	43	650	385	648
26/09/2022	Compost Leachate	EM2218858	<0.005	100	-	-	<0.010	1,430	1,430	138	67	511	359	714
14/12/2022	Compost Leachate	EM2225270	<0.005	-	-	-	<0.004	1,820	1,820	87	64	592	364	681

Table 1
2022 Leachate Summary

					Nutrients						
Table 1: 2022 Leachate Summary	Sulfate (filtered)	Cations Total	Anions Total	Ionic Balance	Ammonia as N	Nitrate (as N)	Nitrite (as N)	Nitrogen (Total Oxidised) (as N)	Nitrogen (Total)	Kjeldahl Nitrogen Total	Phosphorus (Total)
	mg/L	meq/L	meq/L	%	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.1	0.1	0.01
ADWG 2011 Health (v3.7 updated 2022)	**500**					**11.29**	**0.91**				
ANZG (2018) - FW - 95% (updated 26 July 2021)					0.9	2.4					
ANZECC 2000 - Stock Watering	1,000					90	9.1				
ANZECC 2000 Irrigation - Long-term Trigger Values									5		0.05
ANZECC 2000 Irrigation - Short-term Trigger Values									25		0.8

Date	**Field ID**	**Lab Report Number**										
8/02/2022	Compost Leachate	EM2201937	<10	105	116	4.90	402	0.04	<0.01	0.04	428	428	219
15/02/2022	Compost Leachate	EM2202517	7	105	116	4.98	381	0.02	<0.01	0.02	402	402	199
22/02/2022	Compost Leachate	EM2203000	51	136	140	1.60	436	0.03	<0.01	0.03	473	473	230
1/03/2022	Compost Leachate	EM2203580	14	72.3	85.2	8.19	182	0.76	<0.01	0.76	300	299	125
8/03/2022	Compost Leachate	EM2204301	<5	85.6	106	10.8	353	0.03	<0.01	0.03	349	349	98.9
15/03/2022	Compost Leachate	EM2204658	27	90.1	51.6	27.1	329	<0.01	<0.01	<0.01	405	405	167
28/03/2022	Compost Leachate	EM2205592	<1	106	113	3.28	272	<0.01	0.03	<0.01	359	359	130
7/06/2022	Compost Leachate	EM2210925	<5	40.0	43.6	4.30	169	<0.01	<0.01	<0.01	178	178	56.5
26/09/2022	Compost Leachate	EM2218858	<10	41.1	48.7	8.49	286	<0.05	<0.05	0.02	284	284	115
14/12/2022	Compost Leachate	EM2225270	<10	54.1	55.6	1.39	189	<0.05	<0.05	0.02	248	248	67.9

Table 1
2022 Leachate Summary

		Organic Indicators										
Table 1: 2022 Leachate Summary		BOD	Aluminium	Aluminium (filtered)	Arsenic	Arsenic (filtered)	Cadmium	Cadmium (filtered)	Chromium (III+VI)	Chromium (III+VI) (filtered)	Copper	Copper (filtered)
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL		2	0.01	0.01	0.001	0.001	0.0001	0.0001	0.001	0.001	0.001	0.001
ADWG 2011 Health (v3.7 updated 2022)					**0.01**	**0.01**	**0.002**	**0.002**			**2**	**2**
ANZG (2018) - FW - 95% (updated 26 July 2021)			0.055	0.055	0.013	0.013	0.0002	0.0002	0.001	0.001	0.0014	0.0014
ANZECC 2000 - Stock Watering			5	5	0.5	0.5	0.01	0.01	1	1	1	1
ANZECC 2000 Irrigation - Long-term Trigger Values			5	5	0.1	0.1	0.01	0.01	0.1	0.1	0.2	0.2
ANZECC 2000 Irrigation - Short-term Trigger Values			20	20	2	2	0.05	0.05	1	1	5	5
Date	**Field ID**	**Lab Report Number**										
8/02/2022	Compost Leachate	EM2201937	300	4.76	0.13	**0.035**	**0.022**	0.0002	<0.0001	0.023	0.003	0.052	<0.001
15/02/2022	Compost Leachate	EM2202517	258	4.00	0.08	**0.036**	**0.025**	0.0002	<0.0001	0.021	0.004	0.020	<0.001
22/02/2022	Compost Leachate	EM2203000	184	4.54	0.04	**0.036**	**0.025**	0.0003	<0.0001	0.023	0.004	0.037	<0.001
1/03/2022	Compost Leachate	EM2203580	392	6.38	-	**0.028**	-	0.0002	-	0.023	-	0.029	-
8/03/2022	Compost Leachate	EM2204301	320	3.65	-	**0.029**	-	<0.0005	-	0.022	-	0.091	-
15/03/2022	Compost Leachate	EM2204658	13	2.71	-	**0.032**	-	0.0001	-	0.018	-	0.310	-
28/03/2022	Compost Leachate	EM2205592	171	2.40	<0.01	**0.034**	<0.001	0.0001	0.0004	0.016	<0.001	0.032	0.031
7/06/2022	Compost Leachate	EM2210925	369	7.40	0.17	**0.029**	**0.021**	0.0001	<0.0001	0.024	0.005	0.039	0.001
26/09/2022	Compost Leachate	EM2218858	2,100	3.17	0.84	**0.036**	**0.024**	0.0002	<0.0001	0.023	0.012	0.046	0.007
14/12/2022	Compost Leachate	EM2225270	346	1.83	0.15	**0.038**	**0.032**	0.0001	<0.0001	0.014	0.005	0.024	0.004

Table 1
2022 Leachate Summary

				Metals											
				Iron	Iron (filtered)	Lead	Lead (filtered)	Manganese	Manganese (filtered)	Mercury	Mercury (filtered)	Nickel	Nickel (filtered)	Selenium	Selenium (filtered)
Table 1: 2022 Leachate Summary				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL				0.05	0.05	0.001	0.001	0.001	0.001	0.0001	0.0001	0.001	0.001	0.01	0.01
ADWG 2011 Health (v3.7 updated 2022)						**0.01**	**0.01**	**0.5**	**0.5**	**0.001**	**0.001**	**0.02**	**0.02**	**0.01**	**0.01**
ANZG (2018) - FW - 95% (updated 26 July 2021)						0.0034	0.0034	1.9	1.9	0.0006	0.0006	0.011	0.011	0.011	0.011
ANZECC 2000 - Stock Watering						0.1	0.1			0.002	0.002	1	1	0.02	0.02
ANZECC 2000 Irrigation - Long-term Trigger Values				0.2	0.2	2	2	0.2	0.2	0.002	0.002	0.2	0.2	0.02	0.02
ANZECC 2000 Irrigation - Short-term Trigger Values				10	10	5	5	10	10	0.002	0.002	2	2	0.05	0.05
Date	**Field ID**	**Lab Report Number**													
8/02/2022	Compost Leachate	EM2201937		21.5	0.44	**0.014**	<0.001	**1.77**	0.107	<0.0001	<0.0001	**0.144**	**0.075**	<0.01	<0.01
15/02/2022	Compost Leachate	EM2202517		17.0	0.35	**0.011**	<0.001	**1.60**	0.192	<0.0001	<0.0001	**0.127**	**0.084**	<0.01	<0.01
22/02/2022	Compost Leachate	EM2203000		20.3	0.33	**0.012**	<0.001	**1.80**	0.111	<0.0010	<0.0001	**0.138**	**0.092**	<0.01	<0.01
1/03/2022	Compost Leachate	EM2203580		14.6	-	0.010	-	**1.04**	-	<0.0001	-	**0.085**	-	<0.01	-
8/03/2022	Compost Leachate	EM2204301		15.1	-	0.010	-	**1.22**	-	<0.0005	-	**0.127**	-	<0.05	-
15/03/2022	Compost Leachate	EM2204658		13.9	-	0.008	-	**1.39**	-	<0.0001	-	**0.156**	-	<0.01	-
28/03/2022	Compost Leachate	EM2205592		13.6	<0.05	0.007	<0.001	**1.38**	**0.986**	<0.0001	0.0003	**0.115**	**0.114**	<0.01	<0.01
7/06/2022	Compost Leachate	EM2210925		12.6	0.52	**0.014**	<0.001	**0.832**	0.364	<0.0001	<0.0001	**0.059**	**0.040**	<0.01	<0.01
26/09/2022	Compost Leachate	EM2218858		20.0	8.69	**0.012**	0.001	**2.88**	**2.37**	<0.0001	<0.0001	**0.090**	**0.079**	<0.01	<0.01
14/12/2022	Compost Leachate	EM2225270		9.43	0.88	0.008	<0.001	**0.925**	0.290	<0.0001	<0.0001	**0.068**	**0.052**	<0.01	<0.01

Table 1
2022 Leachate Summary

			BTEXN									
Table 1: 2022 Leachate Summary	Zinc	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total	BTEX (Sum of Total) - Lab Calc	Naphthalene	F1 (C6-C10 minus BTEX)	C6-C10 Fraction
	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.005	0.005	1	2	2	2	2	2	1	2	20	20
ADWG 2011 Health (v3.7 updated 2022)			**1**	**800**	**300**			**600**				
ANZG (2018) - FW - 95% (updated 26 July 2021)	0.008	0.008	950	180	80	350				16		
ANZECC 2000 - Stock Watering	20	20										
ANZECC 2000 Irrigation - Long-term Trigger Values	2	2										
ANZECC 2000 Irrigation - Short-term Trigger Values	5	5										

Date	**Field ID**	**Lab Report Number**											
8/02/2022	Compost Leachate	EM2201937	0.407	0.006	<1	10	<2	<2	<2	<2	10	<5	<20	<20
15/02/2022	Compost Leachate	EM2202517	0.336	0.007	<1	6	<2	<2	<2	<2	6	<5	<20	<20
22/02/2022	Compost Leachate	EM2203000	0.386	0.008	<1	7	<2	<2	<2	<2	7	<5	<20	<20
1/03/2022	Compost Leachate	EM2203580	0.211	-	<1	3	<2	<2	<2	<2	3	<5	<20	<20
8/03/2022	Compost Leachate	EM2204301	0.297	-	1	6	<2	<2	<2	<2	7	<5	30	40
15/03/2022	Compost Leachate	EM2204658	0.392	-	<1	7	<2	<2	<2	<2	7	<5	<20	20
28/03/2022	Compost Leachate	EM2205592	0.241	0.089	<1	4	<2	<2	<2	<2	4	<5	<20	<20
7/06/2022	Compost Leachate	EM2210925	0.157	0.009	<1	3	<2	<2	<2	<2	3	<5	<20	<20
26/09/2022	Compost Leachate	EM2218858	0.352	0.055	<1	281	<2	<2	<2	<2	281	-	420	700
14/12/2022	Compost Leachate	EM2225270	0.134	0.014	<1	508	<2	<2	<2	<2	508	-	370	880

Table 1
2022 Leachate Summary

	TRH - NEPM 2013					TRH - NEPM 2013 - SG Cleanup					TRH	
Table 1: 2022 Leachate Summary	F2 (>C10-C16 minus Naphthalene) µg/L	>C10-C16 Fraction µg/L	F3 (>C16-C34 Fraction) µg/L	F4 (>C34-C40 Fraction) µg/L	>C10-C40 (Sum of Total) µg/L	F2 (>C10-C16 minus Naphthalene) SG Cleanup µg/L	>C10-C16 SG Cleanup µg/L	>C16-C34 SG Cleanup µg/L	>C34-C40 SG Cleanup µg/L	>C10-C40 (sum) SG Cleanup µg/L	C6-C9 Fraction µg/L	C10-C14 Fraction µg/L
EQL	100	100	100	100	100	100	100	100	100	100	20	50
ADWG 2011 Health (v3.7 updated 2022)												
ANZG (2018) - FW - 95% (updated 26 July 2021)												
ANZECC 2000 - Stock Watering												
ANZECC 2000 Irrigation - Long-term Trigger Values												
ANZECC 2000 Irrigation - Short-term Trigger Values												
Date **Field ID** **Lab Report Number**												
8/02/2022 Compost Leachate EM2201937	330	330	920	100	1,350	-	<100	<100	<100	<100	20	210
15/02/2022 Compost Leachate EM2202517	900	900	7,930	640	9,470	<100	<100	<100	<100	<100	<20	540
22/02/2022 Compost Leachate EM2203000	620	620	1,990	220	2,830	<100	<100	<100	<100	<100	<20	290
1/03/2022 Compost Leachate EM2203580	300	300	740	<100	1,040	<100	<100	<100	<100	<100	<20	130
8/03/2022 Compost Leachate EM2204301	640	640	1,420	<100	2,060	<100	<100	<100	<100	<100	40	480
15/03/2022 Compost Leachate EM2204658	810	810	2,330	160	3,300	<100	<100	<100	<100	<100	20	450
28/03/2022 Compost Leachate EM2205592	-	-	-	-	-	-	<100	<100	<100	<100	<20	-
7/06/2022 Compost Leachate EM2210925	630	630	730	<100	1,360	-	<100	<100	<100	<100	<20	480
26/09/2022 Compost Leachate EM2218858	1,300	1,300	440	<100	1,740	<100	<100	<100	<100	<100	710	1,260
14/12/2022 Compost Leachate EM2225270	2,040	2,040	2,080	130	4,250	-	<100	<100	<100	<100	900	1,280

Table 1
2022 Leachate Summary

				H - NEPM 1999			TRH - NEPM 1999 - SG Cleanup				TPH
				C15-C28 Fraction	C29-C36 Fraction	C10-C36 (Sum of Total)	C10-C14 SG Cleanup	C15-C28	C29-C36 SG Cleanup	C10-C36 (sum) SG Cleanup	Oil & Grease
Table 1: 2022 Leachate Summary				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				100	50	50	50	100	50	50	5,000
ADWG 2011 Health (v3.7 updated 2022)											
ANZG (2018) - FW - 95% (updated 26 July 2021)											
ANZECC 2000 - Stock Watering											
ANZECC 2000 Irrigation - Long-term Trigger Values											
ANZECC 2000 Irrigation - Short-term Trigger Values											
Date	**Field ID**	**Lab Report Number**									
8/02/2022	Compost Leachate	EM2201937		950	160	1,320	<50	<100	<50	<50	5,000
15/02/2022	Compost Leachate	EM2202517		8,050	650	9,240	<50	<100	<50	<50	18,000
22/02/2022	Compost Leachate	EM2203000		2,090	340	2,720	<50	<100	<50	<50	<5,000
1/03/2022	Compost Leachate	EM2203580		830	70	1,030	<50	<100	<50	<50	<5,000
8/03/2022	Compost Leachate	EM2204301		1,540	190	2,210	<50	<100	<50	<50	<8,000
15/03/2022	Compost Leachate	EM2204658		2,510	300	3,260	<50	<100	<50	<50	<5,000
28/03/2022	Compost Leachate	EM2205592		-	-	-	<50	<100	<50	<50	<5,000
7/06/2022	Compost Leachate	EM2210925		790	90	1,360	<50	<100	<50	<50	<5,000
26/09/2022	Compost Leachate	EM2218858		580	60	1,900	<50	<100	<50	<50	<5,000
14/12/2022	Compost Leachate	EM2225270		2,380	390	4,050	<50	<100	<50	<50	11,000

		Cyanide	Acidity & Alkalinity				Major Ions						
Table 2: Historical Leachate	Total Suspended Solids	Cyanide (Total)	Alkalinity (Carbonate as CaCO3)	Alkalinity (Bicarbonate as CaCO3)	Alkalinity (Hydroxide as CaCO3)	Alkalinity (total as CaCO3)	Calcium (filtered)	Magnesium (filtered)	Potassium (filtered)	Sodium (filtered)	Chloride	Sulfate (filtered)	Cations Total
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L
EQL	5	0.004	1	1	1	1	1	1	1	1	1	1	0.01
ANZECC 2000 - Stock Watering							1,000					1,000	
ANZG (2018) - FW - 95% (updated 26 July 2021)		0.007											
ADWG 2011 Health (v3.6 updated 2021)		0.08										500	
ANZECC 2000 Irrigation - Long-term Trigger Values											350		
ANZECC 2000 Irrigation - Short-term Trigger Values													

Date	**Field ID**	**Lab Report Number**												
13/09/2017	Leachate (compost)	EM1712490	526	-	<1	1,220	<1	1,220	117	52	496	468	1,070	<10	43.2
20/03/2018	CP_L	EM1804934	1,250	-	<1	4,400	<1	4,400	106	44	2,030	1,520	2,370	<5	127
12/12/2018	Compost Leachate	EM1820185	1,860	<0.004	<1	4,600	<1	4,600	60	28	1,420	1,040	1,650	<5	106
20/03/2019	Compost Leachate	EM1904168	-	-	<1	4,100	<1	4,100	82	46	2,560	1,740	2,130	<5	170
26/06/2019	Compost leachate	EM1910173	-	-	<1	3,380	<1	3,380	99	42	1,320	1,030	1,470	<10	104
10/09/2019	Compost Leachate	EM1915222	-	-	<1	2,150	<1	2,150	54	32	716	691	1,020	272	68.4
17/12/2019	Compost Leachate	EM1921873	-	-	<1	4,880	<1	4,880	89	49	2,260	1,500	2,110	<20	160
25/03/2020	Comp Leachate	EM2005146	-	0.007	<1	3,840	<1	3,840	46	24	1,570	1,340	1,900	<20	120
16/06/2020	Comp Leachate	EM2010246	-	-	<1	2,250	<1	2,250	29	19	760	720	1,060	<10	67.9
30/09/2020	Compost leachate	EM2017163	-	-	<1	2,170	<1	2,170	50	32	796	761	1,230	30	73.1
27/10/2020	Compost Leachate	EM2019050	-	<0.004	<1	2,160	<1	2,160	214	96	1,060	875	1,300	6	83.7
7/12/2020	Comp Leachate	EM2021896	-	<0.004	<1	2,020	<1	2,020	84	65	1,060	907	1,240	<5	76.1
23/03/2021	Compost Leachate	EM2105128	-	<0.004	<1	3,540	<1	3,540	106	74	1,100	766	1,220	26	81.4
22/06/2021	Compost Leachate	EM2111910	-	<0.010	<1	2,280	<1	2,280	127	84	895	640	1,020	<5	64.0
27/09/2021	Compost leachate	EM2119193	-	<0.004	<1	1,850	<1	1,850	207	100	713	486	811	10	57.9
6/12/2021	Compost Leachate	EM2124712	-	0.010	<1	5,120	<1	5,120	100	126	1,300	744	1,220	56	100
8/02/2022	Compost Leachate	EM2201937	-	<0.004	<1	3,860	<1	3,860	109	97	1,820	1,040	1,380	<10	105
15/02/2022	Compost Leachate	EM2202517	-	0.010	<1	3,810	<1	3,810	94	88	1,980	982	1,420	7	105
22/02/2022	Compost Leachate	EM2203000	-	<0.004	<1	4,580	<1	4,580	112	74	1,820	1,070	1,690	51	136
1/03/2022	Compost Leachate	EM2203580	-	<0.004	<1	2,810	<1	2,810	85	65	1,190	742	1,020	14	72.3
8/03/2022	Compost Leachate	EM2204301	-	<0.004	<1	3,600	<1	3,600	111	73	1,400	880	1,220	<5	85.6
15/03/2022	Compost Leachate	EM2204658	-	<0.004	<1	693	<1	693	57	36	1,650	968	1,320	27	90.1
28/03/2022	Compost Leachate	EM2205592	-	<0.004	<1	3,820	<1	3,820	101	57	1,500	888	1,310	<1	106
7/06/2022	Compost Leachate	EM2210925	-	<0.004	<1	1,270	<1	1,270	63	43	650	385	648	<5	40.0
26/09/2022	Compost Leachate	EM2218858	-	<0.010	<1	1,430	<1	1,430	138	67	511	359	714	<10	41.1
14/12/2022	Compost Leachate	EM2225270	-	<0.004	<1	1,820	<1	1,820	87	64	592	364	681	<10	54.1

			Nutrients										Organic I
Table 2: Historical Leachate	Anions Total	Ionic Balance	Ammonia as N	Nitrate (as N)	Nitrite (as N)	Nitrogen (Total Oxidised) (as N)	Nitrogen (Total)	Kjeldahl Nitrogen Total	Reactive Phosphorus as P	Phosphorus filterable reactive (P)	Phosphorus (Total)	Phosphorus (Total) (filtered)	BOD
	meq/L	%	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	0.01	0.01	0.01	0.01	0.01	0.01	0.1	0.1	0.01	0.01	0.01	0.01	2
ANZECC 2000 - Stock Watering				90	9.1								
ANZG (2018) - FW - 95% (updated 26 July 2021)			0.9	2.4									
ADWG 2011 Health (v3.6 updated 2021)				11.29	0.91								
ANZECC 2000 Irrigation - Long-term Trigger Values							5				0.05	0.05	
ANZECC 2000 Irrigation - Short-term Trigger Values							25				0.8	0.8	
Date	**Field ID**	**Lab Report Number**											
13/09/2017	Leachate (compost)	EM1712490	54.6	11.7	12.1	0.58	0.12	0.70	209	208	58.3	-	93.9	66.5	1,750
20/03/2018	CP_L	EM1804934	155	9.88	458	0.02	<0.01	0.02	553	553	141	141	243	-	2,500
12/12/2018	Compost Leachate	EM1820185	138	13.3	269	0.28	<0.05	0.28	451	451	75.5	-	138	110	260
20/03/2019	Compost Leachate	EM1904168	142	8.89	291	0.02	<0.01	0.02	572	572	-	-	166	-	-
26/06/2019	Compost leachate	EM1910173	109	2.39	238	<0.01	<0.01	<0.01	456	456	72.4	-	90.5	-	-
10/09/2019	Compost Leachate	EM1915222	77.4	6.17	205	0.01	<0.01	0.01	285	285	-	-	73.2	-	-
17/12/2019	Compost Leachate	EM1921873	157	0.86	321	0.02	<0.01	0.02	403	403	-	-	358	-	-
25/03/2020	Comp Leachate	EM2005146	130	4.00	247	0.03	<0.01	0.03	403	403	-	-	186	-	306
16/06/2020	Comp Leachate	EM2010246	74.8	4.89	198	<0.01	<0.01	<0.01	1,200	1,200	-	-	76.2	-	355
30/09/2020	Compost leachate	EM2017163	78.7	3.70	203	0.02	<0.01	0.02	348	348	90.8	-	148	-	-
27/10/2020	Compost Leachate	EM2019050	80.0	2.32	151	-	-	<0.01	344	344	-	-	295	-	5,420
7/12/2020	Comp Leachate	EM2021896	75.3	0.50	263	0.02	<0.01	0.02	341	341	-	-	122	-	1,510
23/03/2021	Compost Leachate	EM2105128	106	13.0	120	<0.01	<0.01	<0.01	297	297	-	-	122	-	761
22/06/2021	Compost Leachate	EM2111910	74.3	7.48	276	0.02	<0.01	0.02	403	403	-	-	143	-	1,860
27/09/2021	Compost leachate	EM2119193	60.0	1.79	237	<0.05	<0.05	<0.01	354	354	188	-	183	-	-
6/12/2021	Compost Leachate	EM2124712	138	15.8	272	0.02	<0.01	0.02	499	499	-	-	444	-	640
8/02/2022	Compost Leachate	EM2201937	116	4.90	402	0.04	<0.01	0.04	428	428	-	-	219	-	300
15/02/2022	Compost Leachate	EM2202517	116	4.98	381	0.02	<0.01	0.02	402	402	-	-	199	-	258
22/02/2022	Compost Leachate	EM2203000	140	1.60	436	0.03	<0.01	0.03	473	473	-	-	230	-	184
1/03/2022	Compost Leachate	EM2203580	85.2	8.19	182	0.76	<0.01	0.76	300	299	-	-	125	-	392
8/03/2022	Compost Leachate	EM2204301	106	10.8	353	0.03	<0.01	0.03	349	349	-	-	98.9	-	320
15/03/2022	Compost Leachate	EM2204658	51.6	27.1	329	<0.01	<0.01	<0.01	405	405	-	-	167	-	13
28/03/2022	Compost Leachate	EM2205592	113	3.28	272	<0.01	0.03	<0.01	359	359	-	-	130	-	171
7/06/2022	Compost Leachate	EM2210925	43.6	4.30	169	<0.01	<0.01	<0.01	178	178	-	-	56.5	-	369
26/09/2022	Compost Leachate	EM2218858	48.7	8.49	286	<0.05	<0.05	0.02	284	284	-	-	115	-	2,100
14/12/2022	Compost Leachate	EM2225270	55.6	1.39	189	<0.05	<0.05	0.02	248	248	-	-	67.9	-	346

	Indicators												
Table 2: Historical Leachate	Dissolved Organic Carbon	Aluminium	Aluminium (filtered)	Arsenic	Arsenic (filtered)	Cadmium	Cadmium (filtered)	Chromium (III+VI)	Chromium (III+VI) (filtered)	Copper	Copper (filtered)	Iron	Iron (filtered)
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	1	0.01	0.01	0.001	0.001	0.0001	0.0001	0.001	0.001	0.001	0.001	0.05	0.05
ANZECC 2000 - Stock Watering		5	5	0.5	0.5	0.01	0.01	1	1	1	1		
ANZG (2018) - FW - 95% (updated 26 July 2021)		0.055	0.055	0.013	0.013	0.0002	0.0002	0.001	0.001	0.0014	0.0014		
ADWG 2011 Health (v3.6 updated 2021)				0.01	0.01	0.002	0.002			2	2		
ANZECC 2000 Irrigation - Long-term Trigger Values		5	5	0.1	0.1	0.01	0.01	0.1	0.1	0.2	0.2	0.2	0.2
ANZECC 2000 Irrigation - Short-term Trigger Values		20	20	2	2	0.05	0.05	1	1	5	5	10	10
Date	**Field ID**	**Lab Report Number**											
13/09/2017	Leachate (compost)	EM1712490	-	-	-	-	-	-	<0.0001	-	0.008	-	0.001	-	-
20/03/2018	CP_L	EM1804934	-	-	-	-	-	-	<0.0001	-	0.012	-	0.008	-	1.07
12/12/2018	Compost Leachate	EM1820185	849	2.83	0.07	0.058	0.033	0.0003	<0.0001	0.018	0.006	0.027	0.010	10.1	0.41
20/03/2019	Compost Leachate	EM1904168	-	-	0.20	-	0.089	-	-	-	-	-	0.008	-	0.69
26/06/2019	Compost leachate	EM1910173	-	-	0.35	-	0.049	-	-	-	-	-	0.009	-	0.86
10/09/2019	Compost Leachate	EM1915222	-	-	0.23	-	0.030	-	-	-	-	-	0.003	-	1.01
17/12/2019	Compost Leachate	EM1921873	-	-	0.08	-	0.029	-	-	-	-	-	<0.005	-	0.45
25/03/2020	Comp Leachate	EM2005146	-	-	0.22	-	0.033	-	-	-	-	-	0.010	-	0.65
16/06/2020	Comp Leachate	EM2010246	-	-	0.64	-	0.021	-	<0.0002	-	0.012	-	0.018	-	1.22
30/09/2020	Compost leachate	EM2017163	-	-	0.23	-	0.023	-	-	-	-	-	0.051	-	1.15
27/10/2020	Compost Leachate	EM2019050	-	5.21	-	0.033	-	0.0002	-	0.034	-	0.029	-	36.8	-
7/12/2020	Comp Leachate	EM2021896	-	3.07	0.10	0.031	0.019	<0.0001	0.0001	0.018	0.006	0.026	0.166	9.10	0.44
23/03/2021	Compost Leachate	EM2105128	-	1.40	0.07	0.040	0.033	0.0002	<0.0001	0.012	0.008	0.012	0.001	7.36	0.87
22/06/2021	Compost Leachate	EM2111910	-	4.20	0.10	0.036	0.022	0.0002	<0.0001	0.020	0.006	0.034	0.001	16.2	2.53
27/09/2021	Compost leachate	EM2119193	-	8.74	0.08	0.040	0.014	0.0004	<0.0001	0.040	0.008	0.059	<0.001	34.2	5.73
6/12/2021	Compost Leachate	EM2124712	-	2.08	1.79	0.029	0.020	<0.0001	<0.0001	0.016	0.008	0.014	0.002	13.6	2.12
8/02/2022	Compost Leachate	EM2201937	-	4.76	0.13	**0.035**	**0.022**	0.0002	<0.0001	0.023	0.003	0.052	<0.001	21.5	0.44
15/02/2022	Compost Leachate	EM2202517	-	4.00	0.08	**0.036**	**0.025**	0.0002	<0.0001	0.021	0.004	0.020	<0.001	17.0	0.35
22/02/2022	Compost Leachate	EM2203000	-	4.54	0.04	**0.036**	**0.025**	0.0003	<0.0001	0.023	0.004	0.037	<0.001	20.3	0.33
1/03/2022	Compost Leachate	EM2203580	-	6.38	-	**0.028**	-	0.0002	-	0.023	-	0.029	-	14.6	-
8/03/2022	Compost Leachate	EM2204301	-	3.65	-	**0.029**	-	<0.0005	-	0.022	-	0.091	-	15.1	-
15/03/2022	Compost Leachate	EM2204658	-	2.71	-	**0.032**	-	0.0001	-	0.018	-	0.310	-	13.9	-
28/03/2022	Compost Leachate	EM2205592	-	2.40	<0.01	**0.034**	<0.001	0.0001	0.0004	0.016	<0.001	0.032	0.031	13.6	<0.05
7/06/2022	Compost Leachate	EM2210925	-	7.40	0.17	**0.029**	**0.021**	0.0001	<0.0001	0.024	0.005	0.039	0.001	12.6	0.52
26/09/2022	Compost Leachate	EM2218858	-	3.17	0.84	**0.036**	**0.024**	0.0002	<0.0001	0.023	0.012	0.046	0.007	20.0	8.69
14/12/2022	Compost Leachate	EM2225270	-	1.83	0.15	**0.038**	**0.032**	0.0001	<0.0001	0.014	0.005	0.024	0.004	9.43	0.88

	tals												
Table 2: Historical Leachate	Lead	Lead (filtered)	Manganese	Manganese (filtered)	Mercury	Mercury (filtered)	Nickel	Nickel (filtered)	Selenium	Selenium (filtered)	Zinc	Zinc (filtered)	Benzene
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L
EQL	0.001	0.001	0.001	0.001	0.0001	0.0001	0.001	0.001	0.01	0.01	0.005	0.005	1
ANZECC 2000 - Stock Watering	0.1	0.1			0.002	0.002	1	1	0.02	0.02	20	20	
ANZG (2018) - FW - 95% (updated 26 July 2021)	0.0034	0.0034	1.9	1.9	0.0006	0.0006	0.011	0.011	0.011	0.011	0.008	0.008	950
ADWG 2011 Health (v3.6 updated 2021)	0.01	0.01	0.5	0.5	0.001	0.001	0.02	0.02	0.01	0.01			1
ANZECC 2000 Irrigation - Long-term Trigger Values	2	2	0.2	0.2	0.002	0.002	0.2	0.2	0.02	0.02	2	2	
ANZECC 2000 Irrigation - Short-term Trigger Values	5	5	10	10	0.002	0.002	2	2	0.05	0.05	5	5	

Date	**Field ID**	**Lab Report Number**											
13/09/2017	Leachate (compost)	EM1712490	-	<0.001	-	0.738	-	-	-	0.019	-	-	-	0.005	<1
20/03/2018	CP_L	EM1804934	-	0.001	-	0.167	-	-	-	0.048	-	-	-	0.040	-
12/12/2018	Compost Leachate	EM1820185	0.011	0.001	0.871	0.057	<0.0001	<0.0001	0.038	0.020	<0.01	<0.01	0.289	0.040	4
20/03/2019	Compost Leachate	EM1904168	-	<0.001	-	0.075	-	-	-	0.069	-	-	-	0.055	<1
26/06/2019	Compost leachate	EM1910173	-	<0.002	-	0.168	-	-	-	0.041	-	-	-	0.074	<1
10/09/2019	Compost Leachate	EM1915222	-	<0.002	-	0.522	-	-	-	0.049	-	-	-	0.034	<1
17/12/2019	Compost Leachate	EM1921873	-	<0.005	-	0.053	-	-	-	0.068	-	-	-	0.031	<1
25/03/2020	Comp Leachate	EM2005146	-	<0.005	-	0.141	-	-	-	0.091	-	-	-	0.055	-
16/06/2020	Comp Leachate	EM2010246	-	0.002	-	0.390	-	<0.0001	-	0.067	-	<0.02	-	0.180	-
30/09/2020	Compost leachate	EM2017163	-	0.002	-	0.721	-	-	-	0.063	-	-	-	0.105	-
27/10/2020	Compost Leachate	EM2019050	0.016	-	3.29	-	<0.0001	-	0.082	-	<0.01	-	0.346	-	-
7/12/2020	Comp Leachate	EM2021896	0.012	0.002	0.669	0.177	<0.0001	<0.0001	0.077	0.064	<0.01	<0.01	0.218	0.114	-
23/03/2021	Compost Leachate	EM2105128	0.005	<0.001	1.46	0.411	<0.0001	<0.0001	0.075	0.058	<0.01	<0.01	0.173	0.007	<1
22/06/2021	Compost Leachate	EM2111910	0.012	<0.001	2.08	1.43	<0.0001	<0.0001	0.074	0.038	<0.01	<0.01	0.281	0.010	-
27/09/2021	Compost leachate	EM2119193	0.035	<0.001	2.97	1.59	<0.0001	<0.0001	0.084	0.041	<0.01	<0.01	0.502	<0.005	<1
6/12/2021	Compost Leachate	EM2124712	0.008	0.001	1.68	0.225	<0.0010	<0.0001	0.069	0.046	<0.01	<0.01	0.214	0.018	<1
8/02/2022	Compost Leachate	EM2201937	**0.014**	<0.001	**1.77**	0.107	<0.0001	<0.0001	**0.144**	**0.075**	<0.01	<0.01	0.407	0.006	<1
15/02/2022	Compost Leachate	EM2202517	**0.011**	<0.001	**1.60**	0.192	<0.0001	<0.0001	**0.127**	**0.084**	<0.01	<0.01	0.336	0.007	<1
22/02/2022	Compost Leachate	EM2203000	**0.012**	<0.001	**1.80**	0.111	<0.0010	<0.0001	**0.138**	**0.092**	<0.01	<0.01	0.386	0.008	<1
1/03/2022	Compost Leachate	EM2203580	0.010	-	**1.04**	-	<0.0001	-	**0.085**	-	<0.01	-	0.211	-	<1
8/03/2022	Compost Leachate	EM2204301	0.010	-	**1.22**	-	<0.0005	-	**0.127**	-	<0.05	-	0.297	-	1
15/03/2022	Compost Leachate	EM2204658	0.008	-	**1.39**	-	<0.0001	-	**0.156**	-	<0.01	-	0.392	-	<1
28/03/2022	Compost Leachate	EM2205592	0.007	<0.001	**1.38**	**0.986**	<0.0001	0.0003	**0.115**	**0.114**	<0.01	<0.01	0.241	0.089	<1
7/06/2022	Compost Leachate	EM2210925	**0.014**	<0.001	**0.832**	0.364	<0.0001	<0.0001	**0.059**	**0.040**	<0.01	<0.01	0.157	0.009	<1
26/09/2022	Compost Leachate	EM2218858	**0.012**	0.001	**2.88**	**2.37**	<0.0001	<0.0001	**0.090**	**0.079**	<0.01	<0.01	0.352	0.055	<1
14/12/2022	Compost Leachate	EM2225270	0.008	<0.001	**0.925**	0.290	<0.0001	<0.0001	**0.068**	**0.052**	<0.01	<0.01	0.134	0.014	<1

			BTEXN								TRH - NEPM 2013				
Table 2: Historical Leachate			Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total	BTEX (Sum of Total) - Lab Calc	Naphthalene (BTEXN suite)	Naphthalene	F1 (C6-C10 minus BTEX)	C6-C10 Fraction	F2 (>C10-C16 minus Naphthalene)	>C10-C16 Fraction	F3 (>C16-C34 Fraction)
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL			2	2	2	2	2	1	5	1	20	20	100	100	100
ANZECC 2000 - Stock Watering															
ANZG (2018) - FW - 95% (updated 26 July 2021)			180	80	350				16	16					
ADWG 2011 Health (v3.6 updated 2021)			800	300			600								
ANZECC 2000 Irrigation - Long-term Trigger Values															
ANZECC 2000 Irrigation - Short-term Trigger Values															
Date	**Field ID**	**Lab Report Number**													
13/09/2017	Leachate (compost)	EM1712490	213	<2	<2	<2	<2	213	<5	-	300	510	2,410	2,410	2,990
20/03/2018	CP_L	EM1804934	-	-	-	-	-	-	-	-	-	-	-	7,030	4,180
12/12/2018	Compost Leachate	EM1820185	50	4	<2	<2	<2	58	-	<5	70	130	2,090	2,090	1,400
20/03/2019	Compost Leachate	EM1904168	<2	<2	<2	<2	<2	<1	-	<5	<20	<20	900	900	2,870
26/06/2019	Compost leachate	EM1910173	<2	<2	<2	<2	<2	<1	-	<5	60	60	1,140	1,140	3,310
10/09/2019	Compost Leachate	EM1915222	25	<2	<2	<2	<2	25	-	<5	20	50	1,330	1,330	1,410
17/12/2019	Compost Leachate	EM1921873	3	<2	<2	<2	<2	3	-	<5	70	70	2,820	2,820	2,060
25/03/2020	Comp Leachate	EM2005146	-	-	-	-	-	-	-	-	-	-	-	730	3,000
16/06/2020	Comp Leachate	EM2010246	-	-	-	-	-	-	-	-	-	-	-	730	1,580
30/09/2020	Compost leachate	EM2017163	-	-	-	-	-	-	-	-	-	-	-	1,590	8,790
27/10/2020	Compost Leachate	EM2019050	-	-	-	-	-	-	-	-	-	-	-	11,700	4,240
7/12/2020	Comp Leachate	EM2021896	-	-	-	-	-	-	-	-	-	-	-	3,200	1,160
23/03/2021	Compost Leachate	EM2105128	23	<2	<2	<2	<2	23	-	<5	70	90	1,300	1,300	4,030
22/06/2021	Compost Leachate	EM2111910	-	-	-	-	-	-	-	-	-	-	-	9,780	32,600
27/09/2021	Compost leachate	EM2119193	1,050	<2	<2	<2	<2	1,050	-	<5	580	1,630	5,130	5,130	1,610
6/12/2021	Compost Leachate	EM2124712	46	<2	<2	<2	<2	46	-	<5	30	80	750	750	1,260
8/02/2022	Compost Leachate	EM2201937	10	<2	<2	<2	<2	10	-	<5	<20	<20	330	330	920
15/02/2022	Compost Leachate	EM2202517	6	<2	<2	<2	<2	6	-	<5	<20	<20	900	900	7,930
22/02/2022	Compost Leachate	EM2203000	7	<2	<2	<2	<2	7	-	<5	<20	<20	620	620	1,990
1/03/2022	Compost Leachate	EM2203580	3	<2	<2	<2	<2	3	-	<5	<20	<20	300	300	740
8/03/2022	Compost Leachate	EM2204301	6	<2	<2	<2	<2	7	-	<5	30	40	640	640	1,420
15/03/2022	Compost Leachate	EM2204658	7	<2	<2	<2	<2	7	-	<5	<20	20	810	810	2,330
28/03/2022	Compost Leachate	EM2205592	4	<2	<2	<2	<2	4	-	<5	<20	<20	-	-	-
7/06/2022	Compost Leachate	EM2210925	3	<2	<2	<2	<2	3	-	<5	<20	<20	630	630	730
26/09/2022	Compost Leachate	EM2218858	281	<2	<2	<2	<2	281	-	-	420	700	1,300	1,300	440
14/12/2022	Compost Leachate	EM2225270	508	<2	<2	<2	<2	508	-	-	370	880	2,040	2,040	2,080

			TRH - NEPM 2013 - SG Cleanup				TRH - NEPM 1999					TRH - NEPM 19	
Table 2: Historical Leachate	F4 (>C34-C40 Fraction)	>C10-C40 (Sum of Total)	>C10-C16 SG Cleanup	>C16-C34 SG Cleanup	>C34-C40 SG Cleanup	>C10-C40 (sum) SG Cleanup	C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 (Sum of Total)	C10-C14 SG Cleanup	C15-C28 SG Cleanup
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	100	100	100	100	100	100	20	50	100	50	50	50	100
ANZECC 2000 - Stock Watering													
ANZG (2018) - FW - 95% (updated 26 July 2021)													
ADWG 2011 Health (v3.6 updated 2021)													
ANZECC 2000 Irrigation - Long-term Trigger Values													
ANZECC 2000 Irrigation - Short-term Trigger Values													
Date	**Field ID**	**Lab Report Number**											
13/09/2017	Leachate (compost)	EM1712490	370	5,770	-	-	-	-	550	2,170	3,050	350	5,570	-	-
20/03/2018	CP_L	EM1804934	360	11,600	-	-	-	-	-	5,730	4,960	940	11,600	-	-
12/12/2018	Compost Leachate	EM1820185	<100	3,490	-	-	-	-	130	1,670	1,750	150	3,570	-	-
20/03/2019	Compost Leachate	EM1904168	210	3,980	-	-	-	-	<20	620	2,770	500	3,890	-	-
26/06/2019	Compost leachate	EM1910173	300	4,750	-	-	-	-	70	480	3,760	400	4,640	-	-
10/09/2019	Compost Leachate	EM1915222	140	2,880	-	-	-	-	60	980	1,700	210	2,890	-	-
17/12/2019	Compost Leachate	EM1921873	200	5,080	-	-	-	-	70	2,370	2,450	290	5,110	-	-
25/03/2020	Comp Leachate	EM2005146	230	3,960	-	-	-	-	-	450	3,040	390	3,880	-	-
16/06/2020	Comp Leachate	EM2010246	160	2,470	-	-	-	-	-	380	1,760	280	2,420	-	-
30/09/2020	Compost leachate	EM2017163	1,560	11,900	-	-	-	-	-	920	8,740	1,100	10,800	-	-
27/10/2020	Compost Leachate	EM2019050	310	16,200	-	-	-	-	-	14,700	4,710	480	19,900	-	-
7/12/2020	Comp Leachate	EM2021896	<100	4,360	-	-	-	-	-	2,730	1,530	200	4,460	-	-
23/03/2021	Compost Leachate	EM2105128	160	5,490	-	-	-	-	100	960	2,810	1,700	5,470	-	-
22/06/2021	Compost Leachate	EM2111910	540	42,900	-	-	-	-	-	7,120	36,200	830	44,200	-	-
27/09/2021	Compost leachate	EM2119193	120	6,860	<100	<100	<100	<100	1,810	4,700	2,180	250	7,130	<50	<100
6/12/2021	Compost Leachate	EM2124712	140	2,150	<100	320	<100	320	90	550	1,100	430	2,080	<50	190
8/02/2022	Compost Leachate	EM2201937	100	1,350	<100	<100	<100	<100	20	210	950	160	1,320	<50	<100
15/02/2022	Compost Leachate	EM2202517	640	9,470	<100	<100	<100	<100	<20	540	8,050	650	9,240	<50	<100
22/02/2022	Compost Leachate	EM2203000	220	2,830	<100	<100	<100	<100	<20	290	2,090	340	2,720	<50	<100
1/03/2022	Compost Leachate	EM2203580	<100	1,040	<100	<100	<100	<100	<20	130	830	70	1,030	<50	<100
8/03/2022	Compost Leachate	EM2204301	<100	2,060	<100	<100	<100	<100	40	480	1,540	190	2,210	<50	<100
15/03/2022	Compost Leachate	EM2204658	160	3,300	<100	<100	<100	<100	20	450	2,510	300	3,260	<50	<100
28/03/2022	Compost Leachate	EM2205592	-	-	<100	<100	<100	<100	<20	-	-	-	-	<50	<100
7/06/2022	Compost Leachate	EM2210925	<100	1,360	<100	<100	<100	<100	<20	480	790	90	1,360	<50	<100
26/09/2022	Compost Leachate	EM2218858	<100	1,740	<100	<100	<100	<100	710	1,260	580	60	1,900	<50	<100
14/12/2022	Compost Leachate	EM2225270	130	4,250	<100	<100	<100	<100	900	1,280	2,380	390	4,050	<50	<100

	99 - SG Cleanup	
Table 2: Historical Leachate	C29-C36 SG Cleanup µg/L	C10-C36 (sum) SG Cleanup µg/L
EQL	50	50
ANZECC 2000 - Stock Watering		
ANZG (2018) - FW - 95% (updated 26 July 2021)		
ADWG 2011 Health (v3.6 updated 2021)		
ANZECC 2000 Irrigation - Long-term Trigger Values		
ANZECC 2000 Irrigation - Short-term Trigger Values		

Date	Field ID	Lab Report Number		
13/09/2017	Leachate (compost)	EM1712490	-	-
20/03/2018	CP_L	EM1804934	-	-
12/12/2018	Compost Leachate	EM1820185	-	-
20/03/2019	Compost Leachate	EM1904168	-	-
26/06/2019	Compost leachate	EM1910173	-	-
10/09/2019	Compost Leachate	EM1915222	-	-
17/12/2019	Compost Leachate	EM1921873	-	-
25/03/2020	Comp Leachate	EM2005146	-	-
16/06/2020	Comp Leachate	EM2010246	-	-
30/09/2020	Compost leachate	EM2017163	-	-
27/10/2020	Compost Leachate	EM2019050	-	-
7/12/2020	Comp Leachate	EM2021896	-	-
23/03/2021	Compost Leachate	EM2105128	-	-
22/06/2021	Compost Leachate	EM2111910	-	-
27/09/2021	Compost leachate	EM2119193	<50	<50
6/12/2021	Compost Leachate	EM2124712	140	330
8/02/2022	Compost Leachate	EM2201937	<50	<50
15/02/2022	Compost Leachate	EM2202517	<50	<50
22/02/2022	Compost Leachate	EM2203000	<50	<50
1/03/2022	Compost Leachate	EM2203580	<50	<50
8/03/2022	Compost Leachate	EM2204301	<50	<50
15/03/2022	Compost Leachate	EM2204658	<50	<50
28/03/2022	Compost Leachate	EM2205592	<50	<50
7/06/2022	Compost Leachate	EM2210925	<50	<50
26/09/2022	Compost Leachate	EM2218858	<50	<50
14/12/2022	Compost Leachate	EM2225270	<50	<50

Table 3
2022 Stormwater Summary

				Inorganics			Acidity & Alkalinity							
Table 3: 2022 Stormwater Summary				pH (Lab)	Electrical conductivity (lab)	Total Suspended Solids	Alkalinity (Carbonate as CaCO3)	Alkalinity (Bicarbonate as CaCO3)	Alkalinity (Hydroxide as CaCO3)	Alkalinity (total as CaCO3)	Calcium (filtered)	Magnesium (filtered)	Potassium (filtered)	Sodium (filtered)
				pH units	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL				0.01	1	5	1	1	1	1	1	1	1	1
ADWG 2011 Health (v3.7 updated 2022)														
ANZG (2018) - FW - 95% (updated 26 July 2021)														
ANZECC 2000 - Stock Watering											1,000			
ANZECC 2000 Irrigation - Long-term Trigger Values				6-9	2,900									
ANZECC 2000 Irrigation - Short-term Trigger Values														
Date	**Field ID**	**Lab Report Number**												
7/06/2022	S10	EM2210920-AB		7.52	1,550	105	<1	295	<1	295	46	27	173	69

Table 3
2022 Stormwater Summary

			Major Ions				Nutrients					
Table 3: 2022 Stormwater Summary			Chloride	Sulfate (filtered)	Cations Total	Anions Total	Ionic Balance	Ammonia as N	Nitrate (as N)	Nitrite (as N)	Nitrogen (Total Oxidised) (as N)	Nitrogen (Total)	Kjeldahl Nitrogen Total
			mg/L	mg/L	meq/L	meq/L	%	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL			1	1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.1	0.1
ADWG 2011 Health (v3.7 updated 2022)				**500**					**11.29**	**0.91**			
ANZG (2018) - FW - 95% (updated 26 July 2021)								0.9	2.4				
ANZECC 2000 - Stock Watering				1,000					90	9.1			
ANZECC 2000 Irrigation - Long-term Trigger Values			350									5	
ANZECC 2000 Irrigation - Short-term Trigger Values												25	
Date	**Field ID**	**Lab Report Number**											
7/06/2022	S10	EM2210920-AB	174	56	11.9	12.0	0.10	56.2	<0.01	<0.01	<0.01	59.2	59.2

Table 3
2022 Stormwater Summary

			Organic Indicators
Table 3: 2022 Stormwater Summary	Phosphorus filterable reactive (P)	Phosphorus (Total)	BOD
	mg/L	mg/L	mg/L
EQL	0.01	0.01	2
ADWG 2011 Health (v3.7 updated 2022)			
ANZG (2018) - FW - 95% (updated 26 July 2021)			
ANZECC 2000 - Stock Watering			
ANZECC 2000 Irrigation - Long-term Trigger Values		0.05	
ANZECC 2000 Irrigation - Short-term Trigger Values		0.8	

Date	**Field ID**	**Lab Report Number**			
7/06/2022	S10	EM2210920-AB	13.7	15.1	121

			Inorganics			Acidity & Alkalinity							
Table 4: Historical Stormwater	Filtered Total Phosphorus as P (filtered)	Phosphorus total (P2O5) (filtered)	pH (Lab)	Electrical conductivity (lab)	Total Suspended Solids	Alkalinity (Carbonate as CaCO3)	Alkalinity (Bicarbonate as CaCO3)	Alkalinity (Hydroxide as CaCO3)	Alkalinity (total as CaCO3)	Calcium (filtered)	Magnesium (filtered)	Potassium (filtered)	Sodium (filtered)
	mg/L	µg/L	pH units	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	0.01	10	0.01	1	5	1	1	1	1	1	1	1	1
ANZECC 2000 - Stock Watering										1,000			
ANZG (2018) - FW - 95% (updated 26 July 2021)													
ADWG 2011 Health (v3.6 updated 2021)													
ANZECC 2000 Irrigation - Long-term Trigger Values			6-9	2,900									
ANZECC 2000 Irrigation - Short-term Trigger Values													
Date	**Field ID**	**Lab Report Number**											
2/08/2016	S10	EM1609083	0.06	60	7.48	272	153	-	-	-	-	-	-	-	-
10/09/2019	S10	EM1915222	-	-	7.66	5,870	105	<1	1,580	<1	1,580	115	48	649	579
16/06/2020	S10	EM2010246	-	-	-	-	338	<1	82	<1	82	16	7	28	36
4/10/2021	S10	EM2119660	-	-	7.31	289	334	<1	57	<1	57	15	6	21	20
7/06/2022	S10	EM2210920-AB	-	-	7.52	1,550	105	<1	295	<1	295	46	27	173	69

	Major Ions					Nutrients							
Table 4: Historical Stormwater	Chloride	Sulfate (filtered)	Cations Total	Anions Total	Ionic Balance	Ammonia as N	Nitrate (as N)	Nitrite (as N)	Nitrogen (Total Oxidised) (as N)	Nitrogen (Total)	Kjeldahl Nitrogen Total	Reactive Phosphorus as P	Phosphorus filterable reactive (P)
	mg/L	mg/L	meq/L	meq/L	%	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	1	1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.1	0.1	0.01	0.01
ANZECC 2000 - Stock Watering		1,000					90	9.1					
ANZG (2018) - FW - 95% (updated 26 July 2021)						0.9	2.4						
ADWG 2011 Health (v3.6 updated 2021)		500					11.29	0.91					
ANZECC 2000 Irrigation - Long-term Trigger Values	350									5			
ANZECC 2000 Irrigation - Short-term Trigger Values										25			
Date	**Field ID**	**Lab Report Number**											
2/08/2016	S10	EM1609083	-	-	-	-	-	0.2	1.39	0.03	1.42	5.4	4	-	-
10/09/2019	S10	EM1915222	1,090	<20	59.2	62.3	2.56	104	0.58	0.06	0.64	209	208	-	11.0
16/06/2020	S10	EM2010246	66	21	3.66	3.94	3.70	1.64	4.33	0.14	4.47	12.4	7.9	1.14	1.14
4/10/2021	S10	EM2119660	32	26	2.65	2.58	1.27	0.25	0.28	0.05	0.33	10.4	10.1	-	0.24
7/06/2022	S10	EM2210920-AB	174	-	11.9	12.0	0.10	56.2	<0.01	<0.01	<0.01	59.2	59.2	-	13.7

			Metals										
Table 4: Historical Stormwater	Phosphorus (Total)	BOD	Cadmium	Cadmium (filtered)	Chromium (III+VI)	Chromium (III+VI) (filtered)	Copper	Copper (filtered)	Iron	Iron (filtered)	Lead	Lead (filtered)	Manganese
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	0.01	2	0.0001	0.0001	0.001	0.001	0.001	0.001	0.05	0.05	0.001	0.001	0.001
ANZECC 2000 - Stock Watering			0.01	0.01	1	1	1	1			0.1	0.1	
ANZG (2018) - FW - 95% (updated 26 July 2021)			0.0002	0.0002	0.001	0.001	0.0014	0.0014			0.0034	0.0034	1.9
ADWG 2011 Health (v3.6 updated 2021)			0.002	0.002			2	2			0.01	0.01	0.5
ANZECC 2000 Irrigation - Long-term Trigger Values	0.05		0.01	0.01	0.1	0.1	0.2	0.2	0.2	0.2	2	2	0.2
ANZECC 2000 Irrigation - Short-term Trigger Values	0.8		0.05	0.05	1	1	5	5	10	10	5	5	10
Date	**Field ID**	**Lab Report Number**											
2/08/2016	S10	EM1609083	0.58	<2	-	-	-	-	-	-	-	-	-	-	-
10/09/2019	S10	EM1915222	20.2	159	0.0010	0.0002	0.047	0.016	0.138	0.029	12.1	3.39	0.028	0.006	1.67
16/06/2020	S10	EM2010246	3.60	18	-	-	-	-	-	-	-	-	-	-	-
4/10/2021	S10	EM2119660	2.37	<40	<0.005	<0.005	0.06	<0.01	0.03	<0.01	37.7	3.18	0.02	<0.01	0.12
7/06/2022	S10	EM2210920-AB	15.1	121	-	-	-	-	-	-	-	-	-	-	-

Table 4: Historical Stormwater			Manganese (filtered)	Nickel	Nickel (filtered)	Zinc	Zinc (filtered)
			mg/L	mg/L	mg/L	mg/L	mg/L
EQL			0.001	0.001	0.001	0.005	0.005
ANZECC 2000 - Stock Watering				1	1	20	20
ANZG (2018) - FW - 95% (updated 26 July 2021)			1.9	0.011	0.011	0.008	0.008
ADWG 2011 Health (v3.6 updated 2021)			0.5	0.02	0.02		
ANZECC 2000 Irrigation - Long-term Trigger Values			0.2	0.2	0.2	2	2
ANZECC 2000 Irrigation - Short-term Trigger Values			10	2	2	5	5
Date	**Field ID**	**Lab Report Number**					
2/08/2016	S10	EM1609083	-	-	-	-	-
10/09/2019	S10	EM1915222	1.17	0.117	0.086	0.420	0.166
16/06/2020	S10	EM2010246	-	-	-	-	-
4/10/2021	S10	EM2119660	0.02	0.02	<0.01	0.09	0.02
7/06/2022	S10	EM2210920-AB	-	-	-	-	-

Table 5
2022 Groundwater Summary

			NA	s	Acidity & Alkalinity									
			Phosphorus reactive (as P)	Total Dissolved Solids	Alkalinity (Carbonate as CaCO3)	Alkalinity (Bicarbonate as CaCO3)	Alkalinity (Hydroxide as CaCO3)	Alkalinity (total as CaCO3)	Calcium (filtered)	Magnesium	Magnesium (filtered)	Potassium (filtered)
Table 5: 2022 Groundwater Summary			MG/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL			0.01	10	1	1	1	1	1	1	1	1
ADWG 2011 Health (v3.7 updated 2022)												
ANZG (2018) - FW - 95% (updated 26 July 2021)												
ANZECC 2000 - Stock Watering				5,000					1,000			
ANZECC 2000 Irrigation - Long-term Trigger Values												
ANZECC 2000 Irrigation - Short-term Trigger Values												
Date	**Field ID**	**Lab Report Number**										
28/03/2022	B8	EM2205592	<0.01	560	31	296	<1	327	115	-	6	3
26/09/2022	B8	EM2218874	0.01	419	<1	247	<1	247	106	5	5	2

Table 5
2022 Groundwater Summary

				Major Ions						Minor Ions			
				Sodium (filtered)	Chloride	Sulfate (filtered)	Cations Total	Anions Total	Ionic Balance	Iodide	Bromide	Ammonia as N	Nitrate (as N)
Table 5: 2022 Groundwater Summary				mg/L	mg/L	mg/L	meq/L	meq/L	%	µg/L	mg/L	mg/L	mg/L
EQL				1	1	1	0.01	0.01	0.01	10	0.01	0.01	0.01
ADWG 2011 Health (v3.7 updated 2022)						**500**				**500**			**11.29**
ANZG (2018) - FW - 95% (updated 26 July 2021)												0.9	2.4
ANZECC 2000 - Stock Watering						1,000							90
ANZECC 2000 Irrigation - Long-term Trigger Values					350								
ANZECC 2000 Irrigation - Short-term Trigger Values													
Date	**Field ID**	**Lab Report Numb**											
28/03/2022	B8	EM2205592		24	47	8	7.35	8.02	4.38	<10	0.109	0.38	2.38
26/09/2022	B8	EM2218874		22	54	4	6.71	6.54	1.26	<10	0.114	0.05	4.62

Table 5
2022 Groundwater Summary

	Nutrients					Organic Indicators		Metals		
Table 5: 2022 Groundwater Summary	Nitrite (as N)	Nitrogen (Total Oxidised) (as N)	Nitrogen (Total)	Kjeldahl Nitrogen Total	Phosphorus (Total)	BOD	Dissolved Organic Carbon	Arsenic (filtered)	Cadmium (filtered)	Chromium (III+VI) (filtered)
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	0.01	0.01	0.1	0.1	0.01	2	1	0.001	0.0001	0.001
ADWG 2011 Health (v3.7 updated 2022)	**0.91**							**0.01**	**0.002**	
ANZG (2018) - FW - 95% (updated 26 July 2021)								0.013	0.0002	0.001
ANZECC 2000 - Stock Watering	9.1							0.5	0.01	1
ANZECC 2000 Irrigation - Long-term Trigger Values			5		0.05			0.1	0.01	0.1
ANZECC 2000 Irrigation - Short-term Trigger Values			25		0.8			2	0.05	1

Date	Field ID	Lab Report Numb									
28/03/2022	B8	EM2205592	<0.01	2.38	3.0	0.6	0.38	<2	4	<0.001	0.0003	<0.001
26/09/2022	B8	EM2218874	<0.01	4.62	5.3	0.7	0.05	<10	6	<0.001	-	<0.001

Table 5
2022 Groundwater Summary

	Metals									
Table 5: 2022 Groundwater Summary	Copper (filtered) mg/L	Iron mg/L	Iron (filtered) mg/L	Lead (filtered) mg/L	Manganese (filtered) mg/L	Mercury (filtered) mg/L	Nickel (filtered) mg/L	Selenium (filtered) mg/L	Zinc (filtered) mg/L	>C10-C16 Fraction µg/L
EQL	0.001	0.05	0.05	0.001	0.001	0.0001	0.001	0.01	0.005	100
ADWG 2011 Health (v3.7 updated 2022)	**2**			**0.01**	**0.5**	**0.001**	**0.02**	**0.01**		
ANZG (2018) - FW - 95% (updated 26 July 2021)	0.0014			0.0034	1.9	0.0006	0.011	0.011	0.008	
ANZECC 2000 - Stock Watering	1			0.1		0.002	1	0.02	20	
ANZECC 2000 Irrigation - Long-term Trigger Values	0.2	0.2	0.2	2	0.2	0.002	0.2	0.02	2	
ANZECC 2000 Irrigation - Short-term Trigger Values	5	10	10	5	10	0.002	2	0.05	5	
Date	**Field ID**	**Lab Report Numb**								
28/03/2022	B8	EM2205592	0.002	4.79	0.23	0.004	0.141	<0.0001	0.006	<0.01	0.014	<100
26/09/2022	B8	EM2218874	<0.001	-	0.11	<0.001	0.176	<0.0001	0.003	<0.01	<0.005	<100

Table 5
2022 Groundwater Summary

				TRH - NEPM 2016			TRH - NEPM 2000			
				F3 (>C16-C34 Fraction)	F4 (>C34-C40 Fraction)	>C10-C40 (Sum of Total)	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 (Sum of Total)
Table 5: 2022 Groundwater Summary				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				100	100	100	50	100	50	50
ADWG 2011 Health (v3.7 updated 2022)										
ANZG (2018) - FW - 95% (updated 26 July 2021)										
ANZECC 2000 - Stock Watering										
ANZECC 2000 Irrigation - Long-term Trigger Values										
ANZECC 2000 Irrigation - Short-term Trigger Values										
Date	**Field ID**	**Lab Report Numb**								
28/03/2022	B8	EM2205592		<100	<100	<100	<50	<100	<50	<50
26/09/2022	B8	EM2218874		540	<100	540	<50	520	<50	520

			Inorganics					Cyanide	Acidity & Alkalinity							
Table 6: Historical Groundwater			pH (Lab)	Electrical conductivity (lab)	Total Dissolved Solids	Total Dissolved Solids (filtered)	Total Suspended Solids	Cyanide (Total)	Alkalinity (Carbonate as CaCO3)	Alkalinity (Bicarbonate as CaCO3)	Alkalinity (Hydroxide as CaCO3)	Alkalinity (total as CaCO3)	Calcium (filtered)	Magnesium (filtered)	Potassium (filtered)	Sodium (filtered)
			pH units	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL			0.01	1	10	10	5	0.004	1	1	1	1	1	1	1	1
ANZECC 2000 - Stock Watering					5,000	5,000							1,000			
ANZG (2018) - FW - 95% (updated 26 July 2021)								0.007								
ADWG 2011 Health (v3.6 updated 2021)								0.08								
ANZECC 2000 Irrigation - Long-term Trigger Values			6-9	2,900												
ANZECC 2000 Irrigation - Short-term Trigger Values																
Date	**Field ID**	**Lab Report Number**														
3/08/2016	B8	EM1609217	7.34	609	-	-	1,490	<0.004	-	-	-	-	96	3	<1	16
28/02/2017	B8	EM1702250	-	-	-	472	-	<0.004	<1	314	<1	314	106	3	<1	15
12/09/2017	B8	EM1712490	-	-	-	-	-	<0.004	<1	293	<1	293	107	3	1	17
21/03/2018	B8	EM1805110	-	-	-	-	-	<0.004	<1	304	<1	304	109	3	1	15
19/09/2018	B8	EM1815239	-	-	-	-	91	-	<1	234	<1	234	98	2	1	18
19/03/2019	B8	EM1904168	-	-	314	-	-	-	<1	281	<1	281	105	3	1	17
10/09/2019	B8	EM1915222	-	-	385	-	-	-	<1	314	<1	314	108	3	2	22
23/03/2020	B8	EM2005146	-	-	314	-	-	-	<1	262	<1	262	115	3	3	20
30/09/2020	B8	EM2017163	-	-	-	-	-	-	<1	276	<1	276	117	4	2	23
23/03/2021	B8	EM2105110	-	-	526	-	-	-	<1	304	<1	304	122	4	3	21
27/09/2021	B8	EM2119193	-	-	436	-	-	-	<1	276	<1	276	100	5	3	25
28/03/2022	B8	EM2205592	-	-	560	-	-	-	31	296	<1	327	115	6	3	24
26/09/2022	B8	EM2218874	-	-	419	-	-	-	<1	247	<1	247	106	5	2	22

	Major ions						Minor Ions		Nutrients					
Table 6: Historical Groundwater	Chloride	Sulfate (filtered)	Sulfate as S (filtered)	Cations Total	Anions Total	Ionic Balance	Iodide	Bromide	Ammonia as N	Nitrate (as N)	Nitrite (as N)	Nitrogen (Total Oxidised) (as N)	Nitrogen (Total)	Kjeldahl Nitrogen Total
	mg/L	mg/L	mg/L	meq/L	meq/L	%	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	1	1	1	0.01	0.01	0.01	10	0.01	0.01	0.01	0.01	0.01	0.1	0.1
ANZECC 2000 - Stock Watering		1,000	333							90	9.1			
ANZG (2018) - FW - 95% (updated 26 July 2021)									0.9	2.4				
ADWG 2011 Health (v3.6 updated 2021)		500					500			11.29	0.91			
ANZECC 2000 Irrigation - Long-term Trigger Values	350												5	
ANZECC 2000 Irrigation - Short-term Trigger Values													25	
Date	**Field ID**	**Lab Report Number**												
3/08/2016	B8	EM1609217	22	5	5	-	-	-	-	-	<0.01	0.92	<0.01	0.92	2.1	1.2
28/02/2017	B8	EM1702250	31	5	5	6.19	7.25	7.91	<20	0.092	0.09	0.23	<0.01	0.23	0.7	0.5
12/09/2017	B8	EM1712490	23	4	-	6.35	6.59	1.82	-	-	0.01	0.81	0.01	0.82	2.3	1.5
21/03/2018	B8	EM1805110	22	11	-	6.36	6.92	4.21	<50	0.087	0.14	0.18	<0.01	0.18	0.4	0.2
19/09/2018	B8	EM1815239	22	12	-	5.86	5.54	2.78	<20	0.067	0.15	1.37	<0.01	1.37	1.6	0.2
19/03/2019	B8	EM1904168	22	5	-	6.25	6.34	0.70	<10	0.088	0.03	0.69	<0.01	0.69	0.7	<0.1
10/09/2019	B8	EM1915222	38	8	-	6.64	7.51	6.13	<20	<0.020	0.14	0.37	<0.01	0.37	0.8	0.4
23/03/2020	B8	EM2005146	34	7	-	6.93	6.34	4.46	<10	0.077	0.32	0.14	0.02	0.16	0.7	0.5
30/09/2020	B8	EM2017163	47	6	-	7.22	6.96	1.79	<10	0.093	0.04	1.48	<0.01	1.48	1.8	0.3
23/03/2021	B8	EM2105110	43	3	-	7.41	7.35	0.39	<500	<0.500	0.02	0.97	<0.01	0.97	1.4	0.4
27/09/2021	B8	EM2119193	52	4	-	6.56	7.06	3.66	-	-	<0.01	3.17	<0.01	3.17	3.5	0.3
28/03/2022	B8	EM2205592	47		-	7.35	8.02	4.38	<10	0.109	0.38	2.38	<0.01	2.38	3.0	0.6
26/09/2022	B8	EM2218874	54		-	6.71	6.54	1.26	<10	0.114	0.05	4.62	<0.01	4.62	5.3	0.7

					Organic indicators										
Table 6: Historical Groundwater	Reactive Phosphorus as P	Phosphorus (Total)	Phosphorus (Total) (filtered)	BOD	Dissolved Organic Carbon	Aluminium	Aluminium (filtered)	Arsenic	Arsenic (filtered)	Cadmium	Cadmium (filtered)	Chromium (III+VI)	Chromium (III+VI) (filtered)	Copper
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	0.01	0.01	0.01	2	1	0.01	0.01	0.001	0.001	0.0001	0.0001	0.001	0.001	0.001
ANZECC 2000 - Stock Watering						5	5	0.5	0.5	0.01	0.01	1	1	1
ANZG (2018) - FW - 95% (updated 26 July 2021)						0.055	0.055	0.013	0.013	0.0002	0.0002	0.001	0.001	0.0014
ADWG 2011 Health (v3.6 updated 2021)								0.01	0.01	0.002	0.002			2
ANZECC 2000 Irrigation - Long-term Trigger Values		0.05	0.05			5	5	0.1	0.1	0.01	0.01	0.1	0.1	0.2
ANZECC 2000 Irrigation - Short-term Trigger Values		0.8	0.8			20	20	2	2	0.05	0.05	1	1	5
Date	**Field ID**	**Lab Report Number**													
3/08/2016	B8	EM1609217	<0.01	1.33	-	6	15	-	-	-	<0.001	-	0.0001	-	<0.001	-
28/02/2017	B8	EM1702250	<0.01	1.27	-	3	1	-	-	-	<0.001	-	<0.0001	-	<0.001	-
12/09/2017	B8	EM1712490	<0.01	1.14	-	<2	<1	-	-	-	<0.001	-	<0.0001	-	<0.001	-
21/03/2018	B8	EM1805110	0.02	0.16	-	<2	8	-	-	-	<0.001	-	<0.0001	-	<0.001	-
19/09/2018	B8	EM1815239	<0.01	0.10	0.05	<2	-	0.15	<0.01	<0.001	<0.001	<0.0001	<0.0001	<0.001	<0.001	0.001
19/03/2019	B8	EM1904168	<0.01	0.15	-	3	8	-	-	-	<0.001	-	0.0001	-	<0.001	-
10/09/2019	B8	EM1915222	<0.01	0.07	-	<2	5	-	-	-	<0.001	-	0.0002	-	<0.001	-
23/03/2020	B8	EM2005146	<0.01	0.07	-	<2	<1	-	-	-	<0.001	-	<0.0001	-	<0.001	-
30/09/2020	B8	EM2017163	0.02	0.02	-	<16	3	-	-	-	<0.001	-	0.0006	-	<0.001	-
23/03/2021	B8	EM2105110	<0.01	0.14	-	<10	<1	-	-	-	<0.001	-	0.0006	-	<0.001	-
27/09/2021	B8	EM2119193	<0.01	0.22	-	<10	<10	-	-	0.004	<0.001	0.0013	-	0.032	<0.001	0.024
28/03/2022	B8	EM2205592	-	0.38	-	<2	4	-	-	-	<0.001	-	0.0003	-	<0.001	-
26/09/2022	B8	EM2218874	-	0.05	-	<10	6	-	-	-	<0.001	-	-	-	<0.001	-

			Metals												
Table 6: Historical Groundwater			Copper (filtered) mg/L	Iron mg/L	Iron (filtered) mg/L	Lead mg/L	Lead (filtered) mg/L	Manganese mg/L	Manganese (filtered) mg/L	Mercury mg/L	Mercury (filtered) mg/L	Nickel mg/L	Nickel (filtered) mg/L	Selenium mg/L	Selenium (filtered) mg/L	Zinc mg/L
EQL			0.001	0.05	0.05	0.001	0.001	0.001	0.001	0.0001	0.0001	0.001	0.001	0.01	0.01	0.005
ANZECC 2000 - Stock Watering			1			0.1	0.1			0.002	0.002	1	1	0.02	0.02	20
ANZG (2018) - FW - 95% (updated 26 July 2021)			0.0014			0.0034	0.0034	1.9	1.9	0.0006	0.0006	0.011	0.011	0.011	0.011	0.008
ADWG 2011 Health (v3.6 updated 2021)			2			0.01	0.01	0.5	0.5	0.001	0.001	0.02	0.02	0.01	0.01	
ANZECC 2000 Irrigation - Long-term Trigger Values			0.2	0.2	0.2	2	2	0.2	0.2	0.002	0.002	0.2	0.2	0.02	0.02	2
ANZECC 2000 Irrigation - Short-term Trigger Values			5	10	10	5	5	10	10	0.002	0.002	2	2	0.05	0.05	5
Date	**Field ID**	**Lab Report Number**														
3/08/2016	B8	EM1609217	<0.001	29.5	<0.05	-	<0.001	-	0.080	-	<0.0001	-	0.002	-	<0.01	-
28/02/2017	B8	EM1702250	<0.001	41.7	<0.05	-	<0.001	-	0.135	-	<0.0001	-	0.002	-	<0.01	-
12/09/2017	B8	EM1712490	<0.001	32.1	-	-	<0.001	-	0.092	-	<0.0001	-	0.002	-	<0.01	-
21/03/2018	B8	EM1805110	0.006	2.81	-	-	<0.001	-	0.027	-	<0.0001	-	0.004	-	<0.01	-
19/09/2018	B8	EM1815239	<0.001	0.77	<0.05	0.004	<0.001	0.046	0.002	<0.0001	<0.0001	0.002	<0.001	<0.01	<0.01	0.010
19/03/2019	B8	EM1904168	0.002	-	<0.05	-	<0.001	-	0.027	-	<0.0001	-	0.002	-	<0.01	-
10/09/2019	B8	EM1915222	0.010	-	0.42	-	0.001	-	0.531	-	<0.0001	-	0.012	-	<0.01	-
23/03/2020	B8	EM2005146	<0.001	-	0.60	-	<0.001	-	0.925	-	<0.0001	-	0.012	-	<0.01	-
30/09/2020	B8	EM2017163	0.007	-	0.12	-	<0.001	-	0.324	-	<0.0001	-	0.009	-	<0.01	-
23/03/2021	B8	EM2105110	<0.001	-	<0.05	-	<0.001	-	0.280	-	<0.0001	-	0.009	-	<0.01	-
27/09/2021	B8	EM2119193	<0.001	16.2	<0.05	0.045	<0.001	0.308	0.043	<0.0005	<0.0001	0.178	0.002	<0.01	<0.01	0.247
28/03/2022	B8	EM2205592	0.002	4.79	0.23	-	0.004	-	0.141	-	<0.0001	-	0.006	-	<0.01	-
26/09/2022	B8	EM2218874	<0.001	-	0.11	-	<0.001	-	0.176	-	<0.0001	-	0.003	-	<0.01	-

		BTEXN									TRH - NEPM 20			
Table 6: Historical Groundwater	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total	BTEX (Sum of Total) - Lab Calc	Naphthalene (BTEXN suite)	Naphthalene	F1 (C6-C10 minus BTEX)	C6-C10 Fraction	F2 (>C10-C16 minus Naphthalene)	>C10-C16 Fraction
	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.005	1	2	2	2	2	2	1	5	1	20	20	100	100
ANZECC 2000 - Stock Watering	20													
ANZG (2018) - FW - 95% (updated 26 July 2021)	0.008	950	180	80	350				16	16				
ADWG 2011 Health (v3.6 updated 2021)		1	800	300			600							
ANZECC 2000 Irrigation - Long-term Trigger Values	2													
ANZECC 2000 Irrigation - Short-term Trigger Values	5													
Date	**Field ID**	**Lab Report Number**												
3/08/2016	B8	EM1609217	<0.005	<1	<2	<2	<2	<2	<2	<1	<5	-	<20	<20	<100	<100
28/02/2017	B8	EM1702250	<0.005	<1	<2	<2	<2	<2	<2	<1	<5	-	<20	<20	<100	<100
12/09/2017	B8	EM1712490	<0.005	<1	<2	<2	<2	<2	<2	<1	<5	-	<20	<20	<100	<100
21/03/2018	B8	EM1805110	0.019	<1	<2	<2	<2	<2	<2	<1	<5	-	<20	<20	<100	<100
19/09/2018	B8	EM1815239	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	<100
19/03/2019	B8	EM1904168	0.022	<1	<2	<2	<2	<2	<2	<1	-	<5	<20	<20	<100	<100
10/09/2019	B8	EM1915222	0.104	<1	<2	<2	<2	<2	<2	<1	-	<5	<20	<20	<100	<100
23/03/2020	B8	EM2005146	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	<100
30/09/2020	B8	EM2017163	0.010	<1	<2	<2	<2	<2	<2	<1	-	<5	<20	<20	<100	<100
23/03/2021	B8	EM2105110	0.012	<1	<2	<2	<2	<2	<2	<1	-	<5	<20	<20	<100	<100
27/09/2021	B8	EM2119193	<0.005	<1	<2	<2	<2	<2	<2	<1	-	<5	<20	<20	<100	<100
28/03/2022	B8	EM2205592	0.014	-	-	-	-	-	-	-	-	-	-	-	-	<100
26/09/2022	B8	EM2218874	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	<100

	13			TRH - NEPM 1999				
Table 6: Historical Groundwater	F3 (>C16-C34 Fraction) µg/L	F4 (>C34-C40 Fraction) µg/L	>C10-C40 (Sum of Total) µg/L	C6-C9 Fraction µg/L	C10-C14 Fraction µg/L	C15-C28 Fraction µg/L	C29-C36 Fraction µg/L	C10-C36 (Sum of Total) µg/L
EQL	100	100	100	20	50	100	50	50
ANZECC 2000 - Stock Watering								
ANZG (2018) - FW - 95% (updated 26 July 2021)								
ADWG 2011 Health (v3.6 updated 2021)								
ANZECC 2000 Irrigation - Long-term Trigger Values								
ANZECC 2000 Irrigation - Short-term Trigger Values								
Date **Field ID** **Lab Report Number**								
3/08/2016 B8 EM1609217	<100	<100	<100	<20	<50	<100	<50	<50
28/02/2017 B8 EM1702250	<100	<100	<100	<20	<50	<100	<50	<50
12/09/2017 B8 EM1712490	<100	<100	<100	<20	<50	<100	<50	<50
21/03/2018 B8 EM1805110	<100	<100	<100	<20	<50	<100	<50	<50
19/09/2018 B8 EM1815239	<100	<100	<100	-	<50	<100	<50	<50
19/03/2019 B8 EM1904168	<100	<100	<100	<20	<50	<100	<50	<50
10/09/2019 B8 EM1915222	<100	<100	<100	<20	<50	<100	<50	<50
23/03/2020 B8 EM2005146	<100	<100	<100	-	<50	<100	<50	<50
30/09/2020 B8 EM2017163	<100	<100	<100	<20	<50	<100	<50	<50
23/03/2021 B8 EM2105110	<100	<100	<100	<20	<50	<100	<50	<50
27/09/2021 B8 EM2119193	<100	<100	<100	<20	<50	<100	<50	<50
28/03/2022 B8 EM2205592	<100	<100	<100	-	<50	<100	<50	<50
26/09/2022 B8 EM2218874	540	<100	540	-	<50	520	<50	520

			Inorganics		Major Ions						
Table 7: 2022 Soil summary			Moisture (%)	Electrical conductivity (lab)	Calcium (filtered)	Magnesium (filtered)	Potassium (filtered)	Sodium (filtered)	Chloride	Arsenic
			%	µS/cm	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			1	1	10	10	10	10	10	5
Table 4-2 Environmental Guidelines for the Use of Recycled Water in Tasmania (DPIWE, December 2002; ANZECC 2000)										10.3
NEPM 2013 Table 1A(1) HIL D Comm/Ind										3,000[#8]
Date	**Field ID**	**Lab Report Number**								
13/12/2022	Area 1a	EM2225246	31.2	102	<10	<10	90	80	40	5
	Area 1b	EM2225246	32.0	93	<10	<10	100	60	50	<5
	Area 2 East	EM2225246	24.7	40	<10	<10	30	20	<10	6
	Area 2 West	EM2225246	27.7	33	<10	<10	20	20	<10	7
	Area 3 East	EM2225246	29.7	63	<10	<10	60	50	40	10
	Area 3 West	EM2225246	33.1	174	20	<10	200	100	100	10
	Area 4 East	EM2225246	19.1	57	<10	<10	40	40	30	<5
	Area 4 West	EM2225246	23.8	120	<10	<10	110	80	60	10
	B01	EM2225246	10.8	12	<10	<10	<10	<10	<10	<5
	B02	EM2225246	9.0	16	<10	<10	<10	10	10	<5

			Metals						
Table 7: 2022 Soil summary			Cadmium	Copper	Lead	Mercury	Nickel	Selenium	Zinc
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			1	5	5	0.1	2	5	5
Table 4-2 Environmental Guidelines for the Use of Recycled Water in Tasmania (DPIWE, December 2002; ANZECC 2000)			1	71.8	133.3	1	43.6	5.1	153.8
NEPM 2013 Table 1A(1) HIL D Comm/Ind			900	240,000	1,500[#9]	730[#10]	6,000	10,000	400,000
Date	**Field ID**	**Lab Report Number**							
13/12/2022	Area 1a	EM2225246	<1	6	17	<0.1	6	<5	14
	Area 1b	EM2225246	<1	7	14	<0.1	6	<5	17
	Area 2 East	EM2225246	<1	8	17	<0.1	12	<5	19
	Area 2 West	EM2225246	<1	10	18	<0.1	12	<5	19
	Area 3 East	EM2225246	<1	<5	18	<0.1	5	<5	13
	Area 3 West	EM2225246	<1	6	28	<0.1	7	<5	21
	Area 4 East	EM2225246	<1	<5	13	<0.1	5	<5	7
	Area 4 West	EM2225246	<1	<5	10	<0.1	4	<5	<5
	B01	EM2225246	<1	<5	7	<0.1	5	<5	7
	B02	EM2225246	<1	<5	<5	<0.1	2	<5	<5

			Inorganics		Major Ions					Metals				
Table 8: Historical Soil Resullts			Moisture (%)	Electrical conductivity (lab)	Calcium (filtered)	Magnesium (filtered)	Potassium (filtered)	Sodium (filtered)	Chloride	Arsenic	Cadmium	Copper	Lead	Mercury
			%	µS/cm	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Table 4-2 Environmental Guidelines for the Use of Recycled Water in Tasmania (DPIWE, December 2002; ANZECC 2000)										10.3	1	71.8	133.3	1
EQL			1	1	10	10	10	10	10	5	1	5	5	0.1
NEPM 2013 Table 1A(1) HIL D Comm/Ind										3,000	900	240,000	1,500	730
Date	**Field ID**	**Lab Report Number**												
Area 1														
10/02/2020	Area 1a	EM2002353	27.8	482	<10	20	680	410	250	6	<1	6	13	<0.1
27/10/2020	Area 1 271020a	EM2019053	33.6	44	<10	<10	20	20	<10	<5	<1	5	10	<0.1
4/10/2021	Area 1a	EM2119670	34.8	42	<10	<10	80	50	<10	<5	<1	5	10	<0.1
13/12/2022	Area 1a	EM2225246	31.2	102	<10	<10	90	80	40	5	<1	6	17	<0.1
10/02/2020	Area 1b	EM2002353	17.4	74	<10	30	180	110	50	<5	<1	6	11	<0.1
27/10/2020	Area 1 271020b	EM2019053	32.6	45	<10	<10	20	20	<10	<5	<1	6	11	<0.1
4/10/2021	Area 1b	EM2119670	26.2	73	<10	<10	100	60	10	<5	<1	<5	10	<0.1
13/12/2022	Area 1b	EM2225246	32.0	93	<10	<10	100	60	50	<5	<1	7	14	<0.1
Area 2														
11/02/2020	Area 2 East	EM2002353	25.4	108	<10	10	160	130	50	5	<1	9	14	<0.1
26/10/2020	Area 2 East	EM2019053	32.9	66	<10	<10	30	40	10	<5	<1	8	12	<0.1
4/10/2021	Area 2 East	EM2119670	44.3	40	<10	<10	90	60	30	5	<1	8	13	<0.1
13/12/2022	Area 2 East	EM2225246	24.7	40	<10	<10	30	20	<10	6	<1	8	17	<0.1
11/02/2020	Area 2 West	EM2002353	31.9	128	<10	30	290	160	50	5	<1	9	14	<0.1
26/10/2020	Area 2 West	EM2019053	34.2	82	<10	<10	50	50	20	6	<1	8	12	<0.1
4/10/2021	Area 2 West	EM2119670	39.0	43	<10	<10	60	40	<10	7	<1	9	16	<0.1
13/12/2022	Area 2 West	EM2225246	27.7	33	<10	<10	20	20	<10	7	<1	10	18	<0.1
Area 3														
11/02/2020	Area 3 East	EM2002353	15.9	132	<10	<10	160	120	80	8	<1	<5	14	<0.1
26/10/2020	Area 3 East	EM2019053	29.0	30	<10	<10	20	20	<10	6	<1	<5	10	<0.1
4/10/2021	Area 3 East	EM2119670	34.1	92	<10	<10	90	70	90	9	<1	<5	17	<0.1
13/12/2022	Area 3 East	EM2225246	29.7	63	<10	<10	60	50	40	10	<1	<5	18	<0.1
11/02/2020	Area 3 West	EM2002353	19.6	161	<10	10	190	140	80	5	<1	<5	12	<0.1
26/10/2020	Area 3 West	EM2019053	33.1	36	<10	<10	30	20	10	8	<1	<5	16	<0.1
4/10/2021	Area 3 West	EM2119670	37.7	74	<10	<10	110	70	50	6	<1	6	19	<0.1
13/12/2022	Area 3 West	EM2225246	33.1	174	20	<10	200	100	100	10	<1	6	28	<0.1
Area 4														
11/02/2020	Area 4 East	EM2002353	13.0	38	<10	<10	40	30	10	7	<1	9	21	0.1
26/10/2020	Area 4 East	EM2019053	17.7	72	<10	<10	30	40	40	<5	<1	<5	8	<0.1

			Inorganics		Major Ions					Metals				
Table 8: Historical Soil Resullts			Moisture (%)	Electrical conductivity (lab)	Calcium (filtered)	Magnesium (filtered)	Potassium (filtered)	Sodium (filtered)	Chloride	Arsenic	Cadmium	Copper	Lead	Mercury
			%	µS/cm	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Table 4-2 Environmental Guidelines for the Use of Recycled Water in Tasmania (DPIWE, December 2002; ANZECC 2000)										10.3	1	71.8	133.3	1
EQL			1	1	10	10	10	10	10	5	1	5	5	0.1
NEPM 2013 Table 1A(1) HIL D Comm/Ind										3,000	900	240,000	1,500	730
Date	**Field ID**	**Lab Report Number**												
4/10/2021	Area 4 East	EM2119670	19.0	71	<10	<10	40	50	40	6	<1	<5	8	<0.1
13/12/2022	Area 4 East	EM2225246	19.1	57	<10	<10	40	40	30	<5	<1	<5	13	<0.1
11/02/2020	Area 4 West	EM2002353	15.6	58	<10	<10	60	40	20	8	<1	<5	8	<0.1
26/10/2020	Area 4 West	EM2019053	20.1	108	<10	<10	50	70	60	12	<1	<5	14	<0.1
4/10/2021	Area 4 West	EM2119670	26.2	190	<10	<10	80	100	90	6	<1	<5	9	<0.1
13/12/2022	Area 4 West	EM2225246	23.8	120	<10	<10	110	80	60	10	<1	<5	10	<0.1
Area 5														
10/02/2020	Area 5a	EM2002353	19.6	425	<10	20	440	390	530	<5	<1	<5	9	<0.1
10/02/2020	Area 5b	EM2002353	8.6	59	<10	<10	20	60	60	<5	<1	<5	<5	<0.1
10/02/2020	Area 5 comp	EM2002353	10.2	171	<10	<10	100	140	170	<5	<1	<5	6	<0.1
26/10/2020	Area 5 comp	EM2019053	15.6	44	<10	<10	<10	30	40	6	<1	<5	6	<0.1
4/10/2021	Area 5	EM2119670	19.8	65	<10	<10	20	60	80	<5	<1	<5	<5	<0.1
Background														
27/10/2020	BG01	EM2019053	16.1	47	<10	<10	<10	30	20	<5	<1	<5	28	<0.1
4/10/2021	BG01	EM2119670	24.2	30	<10	<10	<10	10	20	<5	<1	7	32	<0.1
13/12/2022	B01	EM2225246	10.8	12	<10	<10	<10	<10	<10	<5	<1	<5	7	<0.1
27/10/2020	BG02	EM2019053	14.3	14	<10	<10	10	<10	10	<5	<1	<5	<5	<0.1
4/10/2021	BG02	EM2119670	30.5	17	10	<10	<10	10	<10	<5	<1	5	10	<0.1
13/12/2022	B02	EM2225246	9.0	16	<10	<10	<10	10	10	<5	<1	<5	<5	<0.1

Table 8: Historical Soil Resullts			Nickel mg/kg	Selenium mg/kg	Zinc mg/kg
Table 4-2 Environmental Guidelines for the Use of Recycled Water in Tasmania (DPIWE, December 2002; ANZECC 2000)			43.6	5.1	153.8
EQL			2	5	5
NEPM 2013 Table 1A(1) HIL D Comm/Ind			6,000	10,000	400,000
Date	**Field ID**	**Lab Report Number**			
Area 1					
10/02/2020	Area 1a	EM2002353	6	<5	10
27/10/2020	Area 1 271020a	EM2019053	5	<5	7
4/10/2021	Area 1a	EM2119670	5	<5	8
13/12/2022	Area 1a	EM2225246	6	<5	14
10/02/2020	Area 1b	EM2002353	5	<5	8
27/10/2020	Area 1 271020b	EM2019053	6	<5	8
4/10/2021	Area 1b	EM2119670	4	<5	7
13/12/2022	Area 1b	EM2225246	6	<5	17
Area 2					
11/02/2020	Area 2 East	EM2002353	10	<5	14
26/10/2020	Area 2 East	EM2019053	9	<5	12
4/10/2021	Area 2 East	EM2119670	10	<5	17
13/12/2022	Area 2 East	EM2225246	12	<5	19
11/02/2020	Area 2 West	EM2002353	10	<5	16
26/10/2020	Area 2 West	EM2019053	10	<5	16
4/10/2021	Area 2 West	EM2119670	11	<5	18
13/12/2022	Area 2 West	EM2225246	12	<5	19
Area 3					
11/02/2020	Area 3 East	EM2002353	3	<5	8
26/10/2020	Area 3 East	EM2019053	3	<5	9
4/10/2021	Area 3 East	EM2119670	3	<5	10
13/12/2022	Area 3 East	EM2225246	5	<5	13
11/02/2020	Area 3 West	EM2002353	4	<5	11
26/10/2020	Area 3 West	EM2019053	5	<5	13
4/10/2021	Area 3 West	EM2119670	4	<5	14
13/12/2022	Area 3 West	EM2225246	7	<5	21
Area 4					
11/02/2020	Area 4 East	EM2002353	31	<5	25
26/10/2020	Area 4 East	EM2019053	5	<5	6

Table 8: Historical Soil Resullts	Nickel mg/kg	Selenium mg/kg	Zinc mg/kg
Table 4-2 Environmental Guidelines for the Use of Recycled Water in Tasmania (DPIWE, December 2002; ANZECC 2000)	43.6	5.1	153.8
EQL	2	5	5
NEPM 2013 Table 1A(1) HIL D Comm/Ind	6,000	10,000	400,000
Date	**Field ID**	**Lab Report Number**			
4/10/2021	Area 4 East	EM2119670	8	<5	9
13/12/2022	Area 4 East	EM2225246	5	<5	7
11/02/2020	Area 4 West	EM2002353	4	<5	6
26/10/2020	Area 4 West	EM2019053	12	<5	15
4/10/2021	Area 4 West	EM2119670	3	<5	7
13/12/2022	Area 4 West	EM2225246	4	<5	<5
Area 5					
10/02/2020	Area 5a	EM2002353	2	<5	<5
10/02/2020	Area 5b	EM2002353	<2	<5	<5
10/02/2020	Area 5 comp	EM2002353	<2	<5	<5
26/10/2020	Area 5 comp	EM2019053	<2	<5	<5
4/10/2021	Area 5	EM2119670	<2	<5	<5
Background					
27/10/2020	BG01	EM2019053	9	<5	11
4/10/2021	BG01	EM2119670	11	<5	16
13/12/2022	B01	EM2225246	5	<5	7
27/10/2020	BG02	EM2019053	4	<5	8
4/10/2021	BG02	EM2119670	10	<5	27
13/12/2022	B02	EM2225246	2	<5	<5

Table 9 - QC Summary

						Inorganics		Major Ions		
Table 9: QC Summary						Moisture (%)	Electrical conductivity (lab)	Calcium (filtered)	Magnesium (filtered)	Potassium (filtered)
						%	µS/cm	mg/kg	mg/kg	mg/kg
EQL						1	1	10	10	10
Location Code	**Date**	**Field ID**	**Matrix Type**	**Sample Type**	**Lab Report Number**					
	13/12/2022	B01	Soil	Normal	EM2225246	10.8	12	<10	<10	<10
		QQC1	Soil	Field_D	EM2225246	9.0	12	<10	<10	<10
RPD						18	0	0	0	0
	13/12/2022	B01	Soil	Normal	EM2225246	10.8	12	<10	<10	<10
		QC1	Soil	Field_D	EM2225246	9.9	11	<10	<10	<10
RPD						9	9	0	0	0

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**

Table 9 - QC Summary

Table 9: QC Summary						Sodium (filtered)	Chloride	Arsenic	Cadmium	Copper
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL						10	10	5	1	5
Location Code	**Date**	**Field ID**	**Matrix Type**	**Sample Type**	**Lab Report Number**					
	13/12/2022	B01	Soil	Normal	EM2225246	<10	<10	<5	<1	<5
		QQC1	Soil	Field_D	EM2225246	<10	<10	<5	<1	<5
RPD						0	0	0	0	0
	13/12/2022	B01	Soil	Normal	EM2225246	<10	<10	<5	<1	<5
		QC1	Soil	Field_D	EM2225246	<10	<10	<5	<1	<5
RPD						0	0	0	0	0

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**

Table 9 - QC Summary

Table 9: QC Summary						Metals				
						Lead	Mercury	Nickel	Selenium	Zinc
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL						5	0.1	2	5	5
Location Code	**Date**	**Field ID**	**Matrix Type**	**Sample Type**	**Lab Report Number**					
	13/12/2022	B01	Soil	Normal	EM2225246	7	<0.1	5	<5	7
		QQC1	Soil	Field_D	EM2225246	7	<0.1	5	<5	7
RPD						0	0	0	0	0
	13/12/2022	B01	Soil	Normal	EM2225246	7	<0.1	5	<5	7
		QC1	Soil	Field_D	EM2225246	6	<0.1	6	<5	7
RPD						15	0	18	0	0

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**

Appendix E

Laboratory Documentation

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM2205592-AA**	Page	: 1 of 9
Amendment	: **2**		
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: SAMANTHA KING	Contact	: Gregory Gommers
Address	: 21-23 PATERSON ST LAUNCESTON TAS, AUSTRALIA 7250	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9600
Project	: 12564388	Date Samples Received	: 30-Mar-2022 11:20
Order number	: 12564388	Date Analysis Commenced	: 30-Mar-2022
C-O-C number	: ----	Issue Date	: 02-Feb-2023 16:36
Sampler	: MH		
Site	: ----		
Quote number	: ME/770/21		
No. of samples received	: 11		
No. of samples analysed	: 11		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- It is recognised that Nitrite as N is less than Nitrite+Nitrate as N for sample #13. However, the difference is within experimental variation of the methods.
- EA015H: EM2205592#2 TDS by method EA-015 may bias high due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper.
- EA015H: EM2205592#4 TDS by method EA-015 may bias high due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper.
- Ionic Balance out of acceptable limits for sample #4 and #10-12 due to analytes not quantified in this report.
- Amendment (12/4/22):This report has been amended to report BTEX on sample 13
- Ionic balances were calculated using: major anions - chloride, alkalinity and sulfate; and major cations - calcium, magnesium, potassium and sodium.
- Ionic balances were calculated using: major anions - chloride, alkalinity and sulfate; and major cations - calcium, magnesium, potassium, sodium and ammonia for sample #13.
- The analytical BOD run containing samples from this work order recovered the certified reference standard within acceptable criteria but the dilution water blank was elevated above 0.2 mg/L.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.
- Amendment (02/02/2023): This report has been amended following the request to report specific samples EM2205592 0013 on a separate COA, received from Samantha King on 02/02/2023.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID				
					B8			
			Sampling date / time		28-Mar-2022 00:00			
Compound	CAS Number	LOR	Unit		EM2205592-002			
				Result	Result	Result		
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	----	**560**			
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	----	<1			
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	----	**31**			
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	----	**296**			
Total Alkalinity as CaCO3	----	1	mg/L	----	**327**			
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	**8**			
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	----	**47**			
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L		**115**			
Magnesium	7439-95-4	1	mg/L		**6**			
Sodium	7440-23-5	1	mg/L		**24**			
Potassium	7440-09-7	1	mg/L		**3**			
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L		<0.001			
Cadmium	7440-43-9	0.0001	mg/L		**0.0003**			
Chromium	7440-47-3	0.001	mg/L		<0.001			
Copper	7440-50-8	0.001	mg/L		**0.002**			
Lead	7439-92-1	0.001	mg/L		**0.004**			
Manganese	7439-96-5	0.001	mg/L		**0.141**			
Nickel	7440-02-0	0.001	mg/L		**0.006**			
Selenium	7782-49-2	0.01	mg/L		<0.01			
Zinc	7440-66-6	0.005	mg/L		**0.014**			
Iron	7439-89-6	0.05	mg/L		**0.23**			
EG020T: Total Metals by ICP-MS								
Iron	7439-89-6	0.05	mg/L		**4.79**			
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L		<0.0001			
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	----	**0.38**			
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	----	<0.01			

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID		B8			
				Sampling date / time		28-Mar-2022 00:00	28-Mar-2022 00:00	29-Mar-2022 00:00	29-Mar-2022 00:00
Compound	CAS Number	LOR	Unit			EM2205592-002	EM2205592-003	EM2205592-004	EM2205592-005
						Result	Result	Result	Result
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L	----		**2.38**			
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L			**2.38**			
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L			**0.6**			
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L			**3.0**			
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L			**0.38**			
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	----		<0.01			
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L	----		**8.02**			
ø Total Cations	----	0.01	meq/L	----		**7.35**			
ø Ionic Balance	----	0.01	%	----		**4.38**		----	
EP002: Dissolved Organic Carbon (DOC)									
Dissolved Organic Carbon	----	1	mg/L			**4**			
EP030: Biochemical Oxygen Demand (BOD)									
Biochemical Oxygen Demand	----	2	mg/L	----		<2			
EP071: Total Petroleum Hydrocarbons									
C10 - C14 Fraction	----	50	µg/L			<50			
C15 - C28 Fraction	----	100	µg/L			<100			
C29 - C36 Fraction	----	50	µg/L			<50			
^ C10 - C36 Fraction (sum)	----	50	µg/L			<50			
EP071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	100	µg/L			<100			
>C16 - C34 Fraction	----	100	µg/L			<100			
>C34 - C40 Fraction	----	100	µg/L			<100			
^ >C10 - C40 Fraction (sum)	----	100	µg/L			<100			
ED009: Anions									
Bromide	24959-67-9	0.010	mg/L	----		**0.109**			
Iodide	20461-54-5	0.010	mg/L	----		<0.010			

CERTIFICATE OF ANALYSIS

Work Order	: **EM2205592-AB**	Page	: 1 of 6
Amendment	: **2**		
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: SAMANTHA KING	Contact	: Gregory Gommers
Address	: 21-23 PATERSON ST LAUNCESTON TAS, AUSTRALIA 7250	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9600
Project	: 12564388	Date Samples Received	: 30-Mar-2022 11:20
Order number	: 12564388	Date Analysis Commenced	: 31-Mar-2022
C-O-C number	: ----	Issue Date	: 02-Feb-2023 16:36
Sampler	: MH		
Site	: ----		
Quote number	: ME/770/21		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

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This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Andrew Lu	VOC Section Supervisor	Melbourne Organics, Springvale, VIC
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

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Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- It is recognised that Nitrite as N is less than Nitrite+Nitrate as N for sample #13. However, the difference is within experimental variation of the methods.
- EA015H: EM2205592#2 TDS by method EA-015 may bias high due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper.
- EA015H: EM2205592#4 TDS by method EA-015 may bias high due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper.
- Ionic Balance out of acceptable limits for sample #4 and #10-12 due to analytes not quantified in this report.
- Amendment (12/4/22):This report has been amended to report BTEX on sample 13
- Ionic balances were calculated using: major anions - chloride, alkalinity and sulfate; and major cations - calcium, magnesium, potassium and sodium.
- Ionic balances were calculated using: major anions - chloride, alkalinity and sulfate; and major cations - calcium, magnesium, potassium, sodium and ammonia for sample #13.
- The analytical BOD run containing samples from this work order recovered the certified reference standard within acceptable criteria but the dilution water blank was elevated above 0.2 mg/L.
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- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	Composite Leachate	----	----	----	----
				Sampling date / time	28-Mar-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2205592-013	--------	--------	--------	--------
					Result	----	----	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	----	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	----	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**3820**	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L		**3820**	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		<1	----	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**1310**	----	----	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**101**	----	----	----	----
Magnesium	7439-95-4	1	mg/L		**57**	----	----	----	----
Sodium	7440-23-5	1	mg/L		**888**	----	----	----	----
Potassium	7440-09-7	1	mg/L		**1500**	----	----	----	----
EG020F: Dissolved Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		<0.01	----	----	----	----
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		**0.0004**	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		**0.031**	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		**0.986**	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.114**	----	----	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.089**	----	----	----	----
Iron	7439-89-6	0.05	mg/L		<0.05	----	----	----	----
EG020T: Total Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		**2.40**	----	----	----	----
Arsenic	7440-38-2	0.001	mg/L		**0.034**	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		**0.0001**	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		**0.016**	----	----	----	----
Copper	7440-50-8	0.001	mg/L		**0.032**	----	----	----	----
Lead	7439-92-1	0.001	mg/L		**0.007**	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		**1.38**	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.115**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	Composite Leachate	----	----	----	----
				Sampling date / time	28-Mar-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2205592-013	--------	--------	--------	--------
					Result	----	----	----	----
EG020T: Total Metals by ICP-MS - Continued									
Selenium	7782-49-2	0.01	mg/L		<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		**0.241**	----	----	----	----
Iron	7439-89-6	0.05	mg/L		**13.6**	----	----	----	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		**0.0003**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EK026SF: Total CN by Segmented Flow Analyser									
Total Cyanide	57-12-5	0.004	mg/L		<0.004	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**272**	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		**0.03**	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		<0.01	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		<0.01	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		**359**	----	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		**359**	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		**130**	----	----	----	----
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**113**	----	----	----	----
ø Total Cations	----	0.01	meq/L		**106**	----	----	----	----
ø Ionic Balance	----	0.01	%		**3.28**	----	----	----	----
EP020: Oil and Grease (O&G)									
Oil & Grease	----	5	mg/L		<5	----	----	----	----
EP030: Biochemical Oxygen Demand (BOD)									
Biochemical Oxygen Demand	----	2	mg/L		**171**	----	----	----	----
EP071 SG: Total Petroleum Hydrocarbons - Silica gel cleanup									
C10 - C36 Fraction (sum)	----	50	µg/L		<50	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	Composite Leachate	----	----	----	----
				Sampling date / time	28-Mar-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2205592-013	--------	--------	--------	--------
					Result	----	----	----	----
EP071 SG: Total Petroleum Hydrocarbons - SV Silica gel cleanup									
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
EP071 SG: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Silica gel cleanup									
>C10 - C40 Fraction (sum)	----	100	µg/L		<100	----	----	----	----
EP071 SG: Total Recoverable Hydrocarbons - SV NEPM 2013 Fractions - Silica gel cleanup									
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		4	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ Total Xylenes	----	2	µg/L		<2	----	----	----	----
^ Sum of BTEX	----	1	µg/L		4	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		124	----	----	----	----
Toluene-D8	2037-26-5	2	%		117	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		117	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	129
Toluene-D8	2037-26-5	70	125
4-Bromofluorobenzene	460-00-4	71	129

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry) 14913 (Biology).

(WATER) EP020: Oil and Grease (O&G)

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM2210920-AB**	Page	: 1 of 4
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: SAMANTHA KING	Contact	: Gregory Gommers
Address	: 21-23 PATERSON ST LAUNCESTON TAS, AUSTRALIA 7250	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9600
Project	: 12564388	Date Samples Received	: 09-Jun-2022 13:50
Order number	: 12564388	Date Analysis Commenced	: 09-Jun-2022
C-O-C number	: ----	Issue Date	: 16-Jun-2022 17:05
Sampler	: MH/RS		
Site	: ----		
Quote number	: ME/770/21		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Jarwis Nheu	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Ionic Balance out of acceptable limits for sample #1-3 due to analytes not quantified in this report.
- Ionic balances were calculated using: major anions - chloride, alkalinity and sulfate; and major cations - calcium, magnesium, potassium and sodium.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	S10	----	----	----	----
			Sampling date / time	07-Jun-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EM2210920-004	--------	--------	--------	--------
				Result	----	----	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.52**	----	----	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**1550**	----	----	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	**105**	----	----	----	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	**295**	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L	**295**	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**56**	----	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	**174**	----	----	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**46**	----	----	----	----
Magnesium	7439-95-4	1	mg/L	**27**	----	----	----	----
Sodium	7440-23-5	1	mg/L	**69**	----	----	----	----
Potassium	7440-09-7	1	mg/L	**173**	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	**56.2**	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	<0.01	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**59.2**	----	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	**59.2**	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**15.1**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	S10	----	----	----	----
				Sampling date / time	07-Jun-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2210920-004	--------	--------	--------	--------
					Result	----	----	----	----
EK071FG: Dissolved Reactive Phosphorus as P by DA									
Dissolved Reactive Phosphorus as P	----	0.01	mg/L		**13.7**	----	----	----	----
EN055: Ionic Balance									
ø **Total Anions**	----	0.01	meq/L		**12.0**	----	----	----	----
ø **Total Cations**	----	0.01	meq/L		**11.9**	----	----	----	----
ø **Ionic Balance**	----	0.01	%		**0.10**	----	----	----	----
EP030: Biochemical Oxygen Demand (BOD)									
Biochemical Oxygen Demand	----	2	mg/L		**121**	----	----	----	----

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM220592-**	Page	: 1 of 7
Client	: **Bmn t TY LTn**	Laboratory	: Environmental Division Melbourne
Contact	: SAMANTHA KING	Contact	: Gregory Gommers
Address	: 2 SALAMANCA SQUARE HOBART TAS, AUSTRALIA 7000	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9600
Project	: 12564388	Date Samples Received	: 09-Jun-2022 13:50
Order number	: 12564388	Date Analysis Commenced	: 09-Jun-2022
C-O-C number	: ----	Issue Date	: 20-Jun-2022 18:28
Sampler	: MH/RS		
Site	: ----		
Quote number	: ME/770/21		
No. of samples received	: 1		
No. of samples analysed	: 1		

ilac-MRA NATA

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

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- General Comments
- Analytical Results
- Surrogate Control Limits

AddGGDPi Gaorl PHGD f erHGeDH Hb HpGi ref orH s Gi we aobDd GD Hpe aoiios Gu hef PrPHe PHPgpl eDHh: c bPiGQ CoDHoi Ref orHy c A,c C Col f iGPDge Ahhehhl eDH Hb PhhGH s Gb c bPiGQ Re/ Gs PDd SPI f ie RegeG HNoHGgPHGDv

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Jarwis Nheu	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC

General Comments

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Where moisture determination has been performed, results are reported on a dry weight basis.

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LOR = Limit of reporting
. = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- ED041G: Sample EM2210925-001 has been diluted prior to analysis due to sample matrix. LORs have been raised accordingly.
- Ionic balances were calculated using: major anions - chloride, alkalinity and sulfate; and major cations - calcium, magnesium, potassium and sodium.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.

Analytical Results

Sub-Matrix: LEACmATE (Matrix: WATER)

Compound	CAS Number	LOR	Unit	Sample ID	Col f ohHLePgpPHe	^^^	^^^	^^^	^^^
				Sampling date / time	07-Jun-2022 00:00	----	----	----	----
				EM220592- ^550	^^^^^	^^^^^	^^^^^	^^^^^
				Result	----	----	----	----
En513t : AikPiGGQwQt C TGrPHor									
mQdro7Gle AikPiGGQPh CPCO1	DMO-210-001	1	mg/L	<1	^^^	^^^	^^^	^^^
CPrwoDPHe AikPiGGQPh CPCO1	3812-32-6	1	mg/L	<1	^^^	^^^	^^^	^^^
x GgPrwoDPHe AikPiGGQPh CPCO1	71-52-3	1	mg/L	0235	^^^	^^^	^^^	^^^
ToHPi AikPiGGQPh CPCO1	----	1	mg/L	0235	^^^	^^^	^^^	^^^
En580B: SbiaPHe (TbrwGlG eHGg) Ph SO8 2^wQnA									
SbiaPHe Ph SO8 ^TbrwGlG eHGg	14808-79-8	1	mg/L	<5	^^^	^^^	^^^	^^^
En58- B: CpiorGle wQn GgreHe ADPiCher									
CpiorGle	16887-00-6	1	mg/L	48j	^^^	^^^	^^^	^^^
En591F: n Ghoi/ ed MPGor CPHGDh									
CPigGl	7440-70-2	1	mg/L	41	^^^	^^^	^^^	^^^
MPuDehGl	7439-95-4	1	mg/L	81	^^^	^^^	^^^	^^^
SodGl	7440-23-5	1	mg/L	1j -	^^^	^^^	^^^	^^^
t oHPhhGl	7440-09-7	1	mg/L	4- 5	^^^	^^^	^^^	^^^
EB525F: n Ghoi/ ed MeHPih wQICt ^MS									
Aibl GGl	7429-90-5	0.01	mg/L	5v03	^^^	^^^	^^^	^^^
ArheDGg	7440-38-2	0.001	mg/L	5v520	^^^	^^^	^^^	^^^
CPdl Gl	7440-43-9	0.0001	mg/L	<0.0001	^^^	^^^	^^^	^^^
Cprol Gl	7440-47-3	0.001	mg/L	5v55-	^^^	^^^	^^^	^^^
Cof f er	7440-50-8	0.001	mg/L	5v550	^^^	^^^	^^^	^^^
LePd	7439-92-1	0.001	mg/L	<0.001	^^^	^^^	^^^	^^^
MPDuPDehe	7439-96-5	0.001	mg/L	5vl48	^^^	^^^	^^^	^^^
NGgkei	7440-02-0	0.001	mg/L	5v585	^^^	^^^	^^^	^^^
SeieDGl	7782-49-2	0.01	mg/L	<0.01	^^^	^^^	^^^	^^^
ZGlg	7440-66-6	0.005	mg/L	5v559	^^^	^^^	^^^	^^^
IroD	7439-89-6	0.05	mg/L	5v- 2	^^^	^^^	^^^	^^^
EB525T: ToHPi MeHPih wQICt ^MS									
Aibl GGl	7429-90-5	0.01	mg/L	3v85	^^^	^^^	^^^	^^^
ArheDGg	7440-38-2	0.001	mg/L	5v529	^^^	^^^	^^^	^^^
CPdl Gl	7440-43-9	0.0001	mg/L	5v5550	^^^	^^^	^^^	^^^
Cprol Gl	7440-47-3	0.001	mg/L	5v528	^^^	^^^	^^^	^^^
Cof f er	7440-50-8	0.001	mg/L	5v519	^^^	^^^	^^^	^^^
LePd	7439-92-1	0.001	mg/L	5v508	^^^	^^^	^^^	^^^
MPDuPDehe	7439-96-5	0.001	mg/L	5vj 12	^^^	^^^	^^^	^^^
NGgkei	7440-02-0	0.001	mg/L	5v5- 9	^^^	^^^	^^^	^^^

Analytical Results

Sub-Matrix: LEACmATE (Matrix: WATER)				Sample ID	Col f ohHLePgpPHe	^^^	^^^	^^^	^^^
				Sampling date / time	07-Jun-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM220592- ^550	^^^^^	^^^^^	^^^^^	^^^^^
					Result	----	----	----	----
EB525T: ToHPi MeHPih wQICt ^MS ^CoDHGbed									
SeieDGl	7782-49-2	0.01	mg/L		<0.01	^^^	^^^	^^^	^^^
ZGg	7440-66-6	0.005	mg/L		5v0- 3	^^^	^^^	^^^	^^^
IroD	7439-89-6	0.05	mg/L		02v4	^^^	^^^	^^^	^^^
EB51- F: n Ghoi/ ed MergbrQwQFIMS									
MergbrQ	7439-97-6	0.0001	mg/L		<0.0001	^^^	^^^	^^^	^^^
EB51- T: ToHPi Rego/ erPwie MergbrQwQFIMS									
MergbrQ	7439-97-6	0.0001	mg/L		<0.0001	^^^	^^^	^^^	^^^
EK524SF: ToHPi CN wQSeul eDHed Fios ADPiCher									
ToHPi CQPDGle	57-12-5	0.004	mg/L		<0.004	^^^	^^^	^^^	^^^
EK5- - : Al l oDQP Ph N									
Al l oDQP Ph N	7664-41-7	0.1	mg/L		049	^^^	^^^	^^^	^^^
EK5- 3B: NGtGe Ph N wQn Ggreke ADPiCher									
NGtGe Ph N	14797-65-0	0.01	mg/L		<0.01	^^^	^^^	^^^	^^^
EK5- j B: NGtPHe Ph N wQn Ggreke ADPiCher									
NGtPHe Ph N	14797-55-8	0.01	mg/L		<0.01	^^^	^^^	^^^	^^^
EK5- 9B: NGtGe f ibh NGtPHe Ph N (NO7) wQn Ggreke ADPiCher									
NGtGe + NGtPHe Ph N	----	0.01	mg/L		<0.01	^^^	^^^	^^^	^^^
EK540B: ToHPi KGeidPpi NGtoueD x Qn Ggreke ADPiCher									
ToHPi KGeidPpi NGtoueD Ph N	----	0.1	mg/L		03j	^^^	^^^	^^^	^^^
EK542B: ToHPi NGtoueD Ph N (TKN + NO7) wQn Ggreke ADPiCher									
^ ToHPi NGtoueD Ph N	----	0.1	mg/L		03j	^^^	^^^	^^^	^^^
EK543B: ToHPi t pohf porbh Ph t wQn Ggreke ADPiCher									
ToHPi t pohf porbh Ph t	----	0.01	mg/L		- 4v-	^^^	^^^	^^^	^^^
EN5- - : loDGg x PiPDge									
ø ToHPi ADGeDh	----	0.01	meq/L		81v4	^^^	^^^	^^^	^^^
ø ToHPi CPHeDh	----	0.01	meq/L		85v5	^^^	^^^	^^^	^^^
ø loDGg x PiPDge	----	0.01	%		8v15	^^^	^^^	^^^	^^^
Et 525: OGPDd BrePhe (O&B)									
OG& BrePhe	----	5	mg/L		<5	^^^	^^^	^^^	^^^
Et 515: x Ggpel GgPi O7QueD nel PDd (x On)									
x Ggpel GgPi O7QueD nel PDd	----	2	mg/L		149	^^^	^^^	^^^	^^^
Et 530 SB: ToHPi t eHoiebl mQdrogPrwoDh ^SGGgP uei giePDbf									
C05 ^C14 FrPgHeD (hbl)	----	50	µg/L		<50	^^^	^^^	^^^	^^^

Analytical Results

Sub-Matrix: LEACmATE (Matrix: WATER)				Sample ID	Col f ohHLePgpPHe	^^^	^^^	^^^	^^^
				Sampling date / time	07-Jun-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM220592- ^550	^^^^^	^^^^^	^^^^^	^^^^^
					Result	----	----	----	----
Et 530 SB: ToHPi t eHoiebl mQdrogPrwoDh ^SV SGGgP uei giePDbf									
C05 ^C08 FrPgHeD	----	50	µg/L		<50	^^^	^^^	^^^	^^^
C0- ^C2j FrPgHeD	----	100	µg/L		<100	^^^	^^^	^^^	^^^
C29 ^C14 FrPgHeD	----	50	µg/L		<50	^^^	^^^	^^^	^^^
Et 530 SB: ToHPi Rego/ erPwie mQdrogPrwoDh ^NEt M 2501 FrPgHeDh ^SGGgP uei giePDbf									
>C05 ^C85 FrPgHeD (hbl)	----	100	µg/L		<100	^^^	^^^	^^^	^^^
Et 530 SB: ToHPi Rego/ erPwie mQdrogPrwoDh ^SV NEt M 2501 FrPgHeDh ^SGGgP uei giePDbf									
>C05 ^C04 FrPgHeD	----	100	µg/L		<100	^^^	^^^	^^^	^^^
>C04 ^C18 FrPgHeD	----	100	µg/L		<100	^^^	^^^	^^^	^^^
>C18 ^C85 FrPgHeD	----	100	µg/L		<100	^^^	^^^	^^^	^^^
Et 5j 5,530: ToHPi t eHoiebl mQdrogPrwoDh									
C4 ^C9 FrPgHeD	----	20	µg/L		<20	^^^	^^^	^^^	^^^
C05 ^C08 FrPgHeD	----	50	µg/L		8j 5	^^^	^^^	^^^	^^^
C0- ^C2j FrPgHeD	----	100	µg/L		395	^^^	^^^	^^^	^^^
C29 ^C14 FrPgHeD	----	50	µg/L		95	^^^	^^^	^^^	^^^
^ C05 ^C14 FrPgHeD (hbl)	----	50	µg/L		0145	^^^	^^^	^^^	^^^
Et 5j 5,530: ToHPi Rego/ erPwie mQdrogPrwoDh ^NEt M 2501 FrPgHeDh									
C4 ^C05 FrPgHeD	C6_C10	20	µg/L		<20	^^^	^^^	^^^	^^^
^ C4 ^C05 FrPgHeD I GBbh x TEX (F0)	C6_C10-BTEX	20	µg/L		<20	^^^	^^^	^^^	^^^
>C05 ^C04 FrPgHeD	----	100	µg/L		415	^^^	^^^	^^^	^^^
>C04 ^C18 FrPgHeD	----	100	µg/L		315	^^^	^^^	^^^	^^^
>C18 ^C85 FrPgHeD	----	100	µg/L		<100	^^^	^^^	^^^	^^^
^ >C05 ^C85 FrPgHeD (hbl)	----	100	µg/L		0145	^^^	^^^	^^^	^^^
^ >C05 ^C04 FrPgHeD I GBbh NPf pHbPieDe (F2)	----	100	µg/L		415	^^^	^^^	^^^	^^^
Et 5j 5: x TEXN									
x eDzeDe	71-43-2	1	µg/L		<1	^^^	^^^	^^^	^^^
ToibeDe	108-88-3	2	µg/L		1	^^^	^^^	^^^	^^^
EHbQweDzeDe	100-41-4	2	µg/L		<2	^^^	^^^	^^^	^^^
I eHP^& f PrP^XQieDe	108-38-3 106-42-3	2	µg/L		<2	^^^	^^^	^^^	^^^
orHbo^XQieDe	95-47-6	2	µg/L		<2	^^^	^^^	^^^	^^^
^ ToHPi XQieDeh	----	2	µg/L		<2	^^^	^^^	^^^	^^^
^ Sbl oax TEX	----	1	µg/L		1	^^^	^^^	^^^	^^^
NPf pHbPieDe	91-20-3	5	µg/L		<5	^^^	^^^	^^^	^^^

Analytical Results

Sub-Matrix: LEACmATE (Matrix: WATER)				Sample ID	Col f ohHLePgpPHe	^^^	^^^	^^^	^^^
				Sampling date / time	07-Jun-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM220592- ^550	^^^^^	^^^^^	^^^^^	^^^^^
					Result	----	----	----	----
Et 5j 5S: Tt m(V),x TEX SbrrouPHeh									
0v2^n@pioroeHpPDe^n8	17060-07-0	2	%		052	^^^	^^^	^^^	^^^
ToibeDe^nj	2037-26-5	2	%		93v9	^^^	^^^	^^^	^^^
8^x rol oaiboroweDzeDe	460-00-4	2	%		91v9	^^^	^^^	^^^	^^^

Surrogate Control Limits

Sub-Matrix: LEACmATE		Recovery Limits (%)	
Compound	CAS Number	Low	High
Et 5j 5S: Tt m(V),x TEX SbrrouPHeh			
0v2^n@pioroehpPDe^n8	17060-07-0	73	129
ToibeDe^nj	2037-26-5	70	125
8^x rol oaiboroweDzeDe	460-00-4	71	129

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry) 14913 (Biology).

(WATER) EP020: Oil and Grease (O&G)

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM2218874**	Page	: 1 of 5
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: SAM KING	Contact	: Gregory Gommers
Address	: 21-23 PATERSON ST LAUNCESTON TAS, AUSTRALIA 7250	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9600
Project	: 12564388	Date Samples Received	: 28-Sep-2022 11:30
Order number	: 12564388	Date Analysis Commenced	: 28-Sep-2022
C-O-C number	: ----	Issue Date	: 05-Oct-2022 17:18
Sampler	: SK/RS		
Site	: ----		
Quote number	: ME/770/21		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Arenie Vijayaratnam	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- EP030: The DO depletion for sample EM2218874 #1 is less than 2mg/L, this indicates that the sample has been over diluted and the BOD is less than 10mg/L. The BOD result reported was estimated from the lowest dilution.
- Ionic balances were calculated using: major anions - chloride, alkalinity and sulfate; and major cations - calcium, magnesium, potassium and sodium.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	B8	----	----	----	----
				Sampling date / time	26-Sep-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2218874-001	--------	--------	--------	--------
					Result	----	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L		**419**	----	----	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	----	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	----	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		**247**	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L		**247**	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		**4**	----	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		**54**	----	----	----	----
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		**106**	----	----	----	----
Magnesium	7439-95-4	1	mg/L		**5**	----	----	----	----
Sodium	7440-23-5	1	mg/L		**22**	----	----	----	----
Potassium	7440-09-7	1	mg/L		**2**	----	----	----	----
ED093T: Total Major Cations									
Magnesium	7439-95-4	1	mg/L		**5**	----	----	----	----
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L		<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L		<0.001	----	----	----	----
Manganese	7439-96-5	0.001	mg/L		**0.176**	----	----	----	----
Nickel	7440-02-0	0.001	mg/L		**0.003**	----	----	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	----	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	----	----	----	----
Iron	7439-89-6	0.05	mg/L		**0.11**	----	----	----	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		**0.05**	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		<0.01	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	B8	----	----	----	----
				Sampling date / time	26-Sep-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2218874-001	--------	--------	--------	--------
					Result	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		**4.62**	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		**4.62**	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		**0.7**	----	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		**5.3**	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		**0.05**	----	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		**0.01**	----	----	----	----
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		**6.54**	----	----	----	----
ø Total Cations	----	0.01	meq/L		**6.71**	----	----	----	----
ø Ionic Balance	----	0.01	%		**1.26**	----	----	----	----
EP002: Dissolved Organic Carbon (DOC)									
Dissolved Organic Carbon	----	1	mg/L		**6**	----	----	----	----
EP030: Biochemical Oxygen Demand (BOD)									
Biochemical Oxygen Demand	----	2	mg/L		<10	----	----	----	----
EP071: Total Petroleum Hydrocarbons									
C10 - C14 Fraction	----	50	µg/L		<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L		**520**	----	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		**520**	----	----	----	----
EP071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		**540**	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L		**540**	----	----	----	----
ED009: Anions									
Bromide	24959-67-9	0.010	mg/L		**0.114**	----	----	----	----
Iodide	20461-54-5	0.010	mg/L		<0.010	----	----	----	----

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry) 14913 (Biology).

(WATER) ED009: Anions

Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM2205595**	Page	: 1 of 7
A- eBd- eBm	: **0**		
Client	: **n t G HTY LTG**	Laboratory	: Environmental Division Melbourne
Contact	: SAM KING	Contact	: Gregory Gommers
Address	: 21-23 PATERSON ST LAUNCESTON TAS, AUSTRALIA 7250	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9600
Project	: 12564388	Date Samples Received	: 28-Sep-2022 11:30
Order number	: 12564388	Date Analysis Commenced	: 28-Sep-2022
C-O-C number	: ----	Issue Date	: 24-Oct-2022 19:09
Sampler	: SK/RS		
Site	:		
Quote number	: ME/770/21		
No. of samples received	: 1		
No. of samples analysed	: 1		

NATA

Accreditation No. 825
Accredited for compliance with
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This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

AddDDoBPi DBaor- PrnDoB I ernDBeBm mo mfDp rel orm h Di se aowBd DB mfie aoiioh DBb pel PrPme PmPuf - eBmp: g wPiDo CoBmoi Rel ormQ g Ayg C Co- I iDPBue Appepp- eBm mo PppDpm h Dfi g wPiDo Re, Deh PBd SP- I ie ReueD mNorDDuPrnDoB/

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Arenie Vijayaratnam	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
v = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- ED041G: EM2218858 #1 Sample required dilution prior Sulfate analysis due to sample matrix. LOR value has been raised accordingly.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- It is recognised that TKN is less than Ammonia as N for sample 1. However, the difference is within experimental variation of the methods.
- EK057G: EM2218858 #1 Sample required dilution for Nitrite as N due to sample matrix. LOR has been raised accordingly.
- EK026SF: EM2218858 #1 Total cyanide LOR has been raised due to matrix interference.
- Amendment (21/10/22):This report has been amended to report SVTPH-EP071SV
- Ionic balances were calculated using: major anions - chloride, alkalinity and sulfate; and major cations - calcium, magnesium, potassium and sodium.
- EP071: EM2218858_001 Poor duplicate precision observed. Insufficient sample remains to confirm sample heterogeneity via re-extraction and re-analysis
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.

Analytical Results

Sub-Matrix: COMHOST / Matrix: WATER(				Sample ID	Co- I opmLePuf Pre	....	....	....	....
				Sampling date / time	26-Sep-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EM2205595.)) 0	.....	.....	.....	.....	
				Result	----	----	----	----	
EG) 13H: AikPiDBDa sc HC TDnPror									
t cdro7Dle AikPiDBDa Pp CPCO1	DMO-210-001	1	mg/L	<1	....	....	....	....	
CPrsoBPre AikPiDBDa Pp CPCO1	3812-32-6	1	mg/L	<1	....	....	....	....	
8 DiPrsoBPre AikPiDBDa Pp CPCO1	71-52-3	1	mg/L	0x1)	....	....	....	....	
TorRi AikPiDBDa Pp CPCO1	----	1	mg/L	0x1)	....	....	....	....	
EG) x0n : SwiaPre ^TwrsDlD emDu(Pp SOx 2. sc GA									
SwiaPre Pp SOx . TwrsDlD emDu	14808-79-8	1	mg/L	<10	....	....	....	....	
EG) x9n : Cf iorDle sc GDpurem ABPicper									
Cf iorDle	16887-00-6	1	mg/L	30x	....	....	....	....	
EG) 41F: GDppoi, ed MPjor CPrDBp									
CPiuDv-	7440-70-2	1	mg/L	015	....	....	....	....	
MPbBepDv-	7439-95-4	1	mg/L	63	....	....	....	....	
SodDv-	7440-23-5	1	mg/L	194	....	....	....	....	
HorRppDv-	7440-09-7	1	mg/L	900	....	....	....	....	
En) 2) F: GDppoi, ed MerRip sc ICH.MS									
Aiw- DBDv-	7429-90-5	0.01	mg/L	) /5x	....	....	....	....	
ArpeBDu	7440-38-2	0.001	mg/L	) /) 2x	....	....	....	....	
CPd- Dv-	7440-43-9	0.0001	mg/L	<0.0001	....	....	....	....	
Cf ro- Dv-	7440-47-3	0.001	mg/L	) /) 02	....	....	....	....	
Col l er	7440-50-8	0.001	mg/L	) /)) 3	....	....	....	....	
LePd	7439-92-1	0.001	mg/L	) /)) 0	....	....	....	....	
MPBbPBepe	7439-96-5	0.001	mg/L	2/13	....	....	....	....	
NDukei	7440-02-0	0.001	mg/L	) /) 34	....	....	....	....	
SeieBDv-	7782-49-2	0.01	mg/L	<0.01	....	....	....	....	
ZDBu	7440-66-6	0.005	mg/L	) /) 99	....	....	....	....	
IroB	7439-89-6	0.05	mg/L	5/64	....	....	....	....	
En) 2) T: TorRi MerRip sc ICH.MS									
Aiw- DBDv-	7429-90-5	0.01	mg/L	1/03	....	....	....	....	
ArpeBDu	7440-38-2	0.001	mg/L	) /) 16	....	....	....	....	
CPd- Dv-	7440-43-9	0.0001	mg/L	) /))) 2	....	....	....	....	
Cf ro- Dv-	7440-47-3	0.001	mg/L	) /) 21	....	....	....	....	
Col l er	7440-50-8	0.001	mg/L	) /) x6	....	....	....	....	
LePd	7439-92-1	0.001	mg/L	) /) 02	....	....	....	....	
MPBbPBepe	7439-96-5	0.001	mg/L	2/55	....	....	....	....	
NDukei	7440-02-0	0.001	mg/L	) /) 4)	....	....	....	....	

Analytical Results

Sub-Matrix: COMHOST
^Matrix: WATER(

Compound	CAS Number	LOR	Unit	Sample ID: Co- I opmLePuf Pre	....	....	....	....
			Sampling date / time	26-Sep-2022 00:00	----	----	----	----
				EM2205595.)) 0	.....	.....	.....	.....
				Result	----	----	----	----
En) 2) T: TorRi MerRip sc ICH.MS . CoBrdBwed								
SeieBDv-	7782-49-2	0.01	mg/L	<0.01	....	....	....	....
ZDBu	7440-66-6	0.005	mg/L	) /192	....	....	....	....
IroB	7439-89-6	0.05	mg/L	2) /)	....	....	....	....
En) 19F: GDppoi, ed Meruwrc sc FIMS								
Meruwrc	7439-97-6	0.0001	mg/L	<0.0001	....	....	....	....
En) 19T: TorRi Reuo, erPsie Meruwrc sc FIMS								
Meruwrc	7439-97-6	0.0001	mg/L	<0.0001	....	....	....	....
EK) 26SF: TorRi CN sc Seb- eBrad Fioh ABPicper								
TorRi CcPBDle	57-12-5	0.004	mg/L	<0.010	....	....	....	....
EK) 99n : A- - oBDP Pp N sc GDpurera ABPicper								
A- - oBDP Pp N	7664-41-7	0.01	mg/L	256	....	....	....	....
EK) 93n : NDnDa Pp N sc GDpurera ABPicper								
NDnDa Pp N	14797-65-0	0.01	mg/L	<0.05	....	....	....	....
EK) 95n : NDnPra Pp N sc GDpurera ABPicper								
NDnPra Pp N	14797-55-8	0.01	mg/L	<0.05	....	....	....	....
EK) 94n : NDnDa I iwp NDnPra Pp N ^NO7(sc GDpurera ABPicper								
NDnDa + NDnPra Pp N	----	0.01	mg/L	) /) 2	....	....	....	....
EK) 60n : TorRi KjeidPf i NDnobeB 8 c GDpurera ABPicper								
TorRi KjeidPf i NDnobeB Pp N	----	0.1	mg/L	25x	....	....	....	....
EK) 62n : TorRi NDnobeB Pp N ^TKN + NO7(sc GDpurera ABPicper								
^ TorRi NDnobeB Pp N	----	0.1	mg/L	25x	....	....	....	....
EK) 63n : TorRi Hf opl f orwp Pp H sc GDpurera ABPicper								
TorRi Hf opl f orwp Pp H	----	0.01	mg/L	009	....	....	....	....
EK) 30n : RePurDe Hf opl f orwp Pp H sc dDpurera PBPicper								
RePurDe Hf opl f orwp Pp H	14265-44-2	0.01	mg/L	0))	....	....	....	....
EN) 99: IoBDu 8 PiPBue								
ø TorRi ABDoBp	----	0.01	meq/L	x5/3	....	....	....	....
ø TorRi CPrDoBp	----	0.01	meq/L	x0/0	....	....	....	....
ø IoBDu 8 PiPBue	----	0.01	%	5/x4	....	....	....	....
EH) 2) : OD PBd n rePpe ^O&n (								
OD & n rePpe	----	5	mg/L	<5	....	....	....	....
EH) 1) : 8 Douf e- DnPi O7cbeB Ge- PBd ^8 OG(								
8 Douf e- DnPi O7cbeB Ge- PBd	----	2	mg/L	20))	....	....	....	....

Analytical Results

Sub-Matrix: COMHOST / Matrix: WATER(				Sample ID	Co- I opmLePuf Pne	....	....	....	....
				Sampling date / time	26-Sep-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2205595.)) 0	.....	.....	.....	.....
					Result	----	----	----	----
EH) 30 Sn : TorRi Hemoiew- t cdrouPrsoBp . SDDuP bei uiePBwl									
C0) . C0x FrPurDoB	----	50	µg/L		<50	....	....	....	....
C09 . C25 FrPurDoB	----	100	µg/L		<100	....	....	....	....
C24 . C16 FrPurDoB	----	50	µg/L		<50	....	....	....	....
^ C0) . C16 FrPurDoB ^pw- (	----	50	µg/L		<50	....	....	....	....
EH) 30 Sn : TorRi Reuo, erPsie t cdrouPrsoBp . NEHM 2) 01 FrPurDoBp . SDDuP bei uiePBwl									
VC0) . C06 FrPurDoB	----	100	µg/L		<100	....	....	....	....
VC06 . C1x FrPurDoB	----	100	µg/L		<100	....	....	....	....
VC1x . Cx) FrPurDoB	----	100	µg/L		<100	....	....	....	....
^ VC0) . Cx) FrPurDoB ^pw- (	----	100	µg/L		<100	....	....	....	....
VC0) . C06 FrPurDoB - DBwp NPl f rnPieBe ^F2(	----	100	µg/L		<100	....	....	....	....
EH) 5) y) 30: TorRi Hemoiew- t cdrouPrsoBp									
C6 . C4 FrPurDoB	----	20	µg/L		30)	....	....	....	....
C0) . C0x FrPurDoB	----	50	µg/L		026)	....	....	....	....
C09 . C25 FrPurDoB	----	100	µg/L		95)	....	....	....	....
C24 . C16 FrPurDoB	----	50	µg/L		6)	....	....	....	....
^ C0) . C16 FrPurDoB ^pw- (	----	50	µg/L		04))	....	....	....	....
EH) 5) y) 30: TorRi Reuo, erPsie t cdrouPrsoBp . NEHM 2) 01 FrPurDoBp									
C6 . C0) FrPurDoB	C6_C10	20	µg/L		3))	....	....	....	....
^ C6 . C0) FrPurDoB - DBwp 8 TE> ^F0(	C6_C10-BTEX	20	µg/L		x2)	....	....	....	....
VC0) . C06 FrPurDoB	----	100	µg/L		01))	....	....	....	....
VC06 . C1x FrPurDoB	----	100	µg/L		xx)	....	....	....	....
VC1x . Cx) FrPurDoB	----	100	µg/L		<100	....	....	....	....
^ VC0) . Cx) FrPurDoB ^pw- (	----	100	µg/L		03x)	....	....	....	....
^ VC0) . C06 FrPurDoB - DBwp NPl f rnPieBe ^F2(	----	100	µg/L		01))	....	....	....	....
EH) 5) : 8 TE>N									
8 eBXeBe	71-43-2	1	µg/L		<1	....	....	....	....
ToiweBe	108-88-3	2	µg/L		250	....	....	....	....
EnciseBXeBe	100-41-4	2	µg/L		<2	....	....	....	....
- enR. & I PrP.>cieBe	108-38-3 106-42-3	2	µg/L		<2	....	....	....	....
ornho.>cieBe	95-47-6	2	µg/L		<2	....	....	....	....
^ TorRi >cieBep	----	2	µg/L		<2	....	....	....	....
^ Sw- oa8 TE>	----	1	µg/L		250	....	....	....	....

Analytical Results

Sub-Matrix: COMHOST / Matrix: WATER(				Sample ID	Co- I opmLePuf Pne	....	....	....	....
				Sampling date / time	26-Sep-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2205595.)) 0	.....	.....	.....	.....
					Result	----	----	----	----
EH) 5) : 8 TE>N . CoBrBwed									
NPl f mPieBe	91-20-3	5	µg/L		<5	....	....	....	....
EH) 5) S: THt ^z (y8 TE> SwrrobPnap									
0/2.GDnf ioroemPBe.Gx	17060-07-0	2	%		44/)	....	....	....	....
ToiweBe.G5	2037-26-5	2	%		44/x	....	....	....	....
x.8 ro- oaworoseBXeBe	460-00-4	2	%		0))	....	....	....	....

Surrogate Control Limits

Sub-Matrix: COMHOST		Recovery Limits (%)	
Compound	CAS Number	Low	High
EH) 5) S: THt ^z (yβ TE> SwrrobPrep			
0/2. GDrf ioroemPBe. Gx	17060-07-0	73	129
ToiweBe. G5	2037-26-5	70	125
x.8 ro- oaiworoseBXeBe	460-00-4	71	129

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry) 14913 (Biology).

(WATER) EP020: Oil and Grease (O&G)

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM2220259**	Page	: 1 of 7
Client	: **- BmnTY LTm**	Laboratory	: Environmental Division Melbourne
Contact	: SAMANTHA KING	Contact	: Gregory Gommers
Address	: 21-23 PATERSON ST LAUNCESTON TAS, AUSTRALIA 7250	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9600
Project	: 12564388	Date Samples Received	: 16-Dec-2022 12:00
Order number	: 12564388	Date Analysis Commenced	: 16-Dec-2022
C-O-C number	: ----	Issue Date	: 30-Dec-2022 16:35
Sampler	: RS		
Site	: ----		
Quote number	: ME/770/21		
No. of samples received	: 1		
No. of samples analysed	: 1		

NATA

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

AddtGoHDP tHiora DGoH I erGHeHG Go Gtp rel orG htPP se iowHd tH Ge ioPoh tHb pel DrDGe DGDuf a eHGp: g wDPGe CoHGoP Rel orGQ g AygC Coa I PDHue Appeppa eHG Go DpptpG h tG g wDPGe Re, teh DHd SDa I Pe Reuetl GNoGituDGoH/

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Dilani Fernando	Laboratory Coordinator	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Nanthini Coilparampil	Laboratory Manager - Inorganics	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
v = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO2 and Fluoride to the Anions.
- EK057G: EM2225270 #1 Sample required dilution for Nitrite as N due to sample matrix. LOR has been raised accordingly.
- ED041G: EM2225270 #1 , sample have been diluted prior to analysis and LOR has been raised accordingly.
- Ionic balances were calculated using: major anions - chloride, alkalinity and sulfate; and major cations - calcium, magnesium, potassium and sodium.
- Ionic balances were calculated using: major anions - chloride, alkalinity, sulfate; and major cations - calcium, magnesium, potassium, sodium and ammonia for #1.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.

Analytical Results

Sub-Matrix: WATER
^Matrix: WATER(

				Sample ID	Coa l opGLeDuf DGe	....	....	....	....
				Sampling date / time	14-Dec-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2220259.99)	.....	.....	.....	.....
					Result	----	----	----	----
Em915n: ARkDRHtGe sc nC TtGDGor									
Bcdro3tde ARkDRHtGe Dp CDCO1	DMO-210-001	1	mg/L		<1	....	....	....	....
CDrsoHDGe ARkDRHtGe Dp CDCO1	3812-32-6	1	mg/L		<1	....	....	....	....
xtuDrsoHDGe ARkDRHtGe Dp CDCO1	71-52-3	1	mg/L		) 729	....	....	....	....
ToGDPARkDRHtGe Dp CDCO1	----	1	mg/L		) 729	....	....	....	....
Em98) - : SwPDGe ^Twrstdta eGtu(Dp SO8 2. sc mA									
SwPDGe Dp SO8 . Twrstdta eGtu	14808-79-8	1	mg/L		<10	....	....	....	....
Em980- : Cf Rortde sc mtpureGe AHDRoper									
Cf Rortde	16887-00-6	1	mg/L		47)	....	....	....	....
Em9j 1F: mtppoP, ed MDGor CDGoHp									
CDRutwa	7440-70-2	1	mg/L		75	....	....	....	....
MDbHeptwa	7439-95-4	1	mg/L		48	....	....	....	....
Sodtwa	7440-23-5	1	mg/L		148	....	....	....	....
noGDpptwa	7440-09-7	1	mg/L		0j 2	....	....	....	....
E- 929F: mtppoP, ed MeGDp sc ICn.MS									
ARva tHtwa	7429-90-5	0.01	mg/L		9/) 0	....	....	....	....
ArpeHtu	7440-38-2	0.001	mg/L		9/912	....	....	....	....
CDda twa	7440-43-9	0.0001	mg/L		<0.0001	....	....	....	....
Cf roa twa	7440-47-3	0.001	mg/L		9/990	....	....	....	....
Col l er	7440-50-8	0.001	mg/L		9/998	....	....	....	....
LeDd	7439-92-1	0.001	mg/L		<0.001	....	....	....	....
MDHbDHepe	7439-96-5	0.001	mg/L		9/2j 9	....	....	....	....
NtukeP	7440-02-0	0.001	mg/L		9/902	....	....	....	....
SeReHtwa	7782-49-2	0.01	mg/L		<0.01	....	....	....	....
ZtHu	7440-66-6	0.005	mg/L		9/9) 8	....	....	....	....
IroH	7439-89-6	0.05	mg/L		9/77	....	....	....	....
E- 929T: ToGDPMeGDp sc ICn.MS									
ARva tHtwa	7429-90-5	0.01	mg/L		) /71	....	....	....	....
ArpeHtu	7440-38-2	0.001	mg/L		9/917	....	....	....	....
CDda twa	7440-43-9	0.0001	mg/L		9/999)	....	....	....	....
Cf roa twa	7440-47-3	0.001	mg/L		9/9) 8	....	....	....	....
Col l er	7440-50-8	0.001	mg/L		9/928	....	....	....	....
LeDd	7439-92-1	0.001	mg/L		9/997	....	....	....	....
MDHbDHepe	7439-96-5	0.001	mg/L		9/j 20	....	....	....	....
NtukeP	7440-02-0	0.001	mg/L		9/947	....	....	....	....

Analytical Results

Sub-Matrix: WATER / ^Matrix: WATER(				Sample ID	Coa l opGLeDuf DGe	....	....	....	....
				Sampling date / time	14-Dec-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2220259.99)	.....	.....	.....	.....
					Result	----	----	----	----
E- 929T: ToGDPMeGDRp sc ICn.MS . CoHGHwed									
SeRsHtwa	7782-49-2	0.01	mg/L		<0.01	....	....	....	....
ZtHu	7440-66-6	0.005	mg/L		9/) 18	....	....	....	....
IroH	7439-89-6	0.05	mg/L		j /81	....	....	....	....
E- 910F: mtppoP, ed Meruwrc sc FIMS									
Meruwrc	7439-97-6	0.0001	mg/L		<0.0001	....	....	....	....
E- 910T: ToGDPReuo, erDsRe Meruwrc sc FIMS									
Meruwrc	7439-97-6	0.0001	mg/L		<0.0001	....	....	....	....
EK924SF: ToGDPCN sc Seba eHGed FRoh AHDRcper									
ToGDPCcDHtde	57-12-5	0.004	mg/L		<0.004	....	....	....	....
EK900: Aa a oHtD Dp N									
Aa a oHtD Dp N	7664-41-7	0.1	mg/L		) 7j	....	....	....	....
EK905- : NtGtGe Dp N sc mtpureGe AHDRcper									
NtGtGe Dp N	14797-65-0	0.01	mg/L		<0.05	....	....	....	....
EK907- : NtGDGe Dp N sc mtpureGe AHDRcper									
NtGDGe Dp N	14797-55-8	0.01	mg/L		<0.05	....	....	....	....
EK90j - : NtGtGe I Rwp NtGDGe Dp N ^NO3(sc mtpureGe AHDRcper									
NtGtGe + NtGDGe Dp N	----	0.01	mg/L		9/92	....	....	....	....
EK94) - : ToGDPKGeRlDf PNtGobeH x c mtpureGe AHDRcper									
ToGDPKGeRlDf PNtGobeH Dp N	----	0.1	mg/L		287	....	....	....	....
EK942- : ToGDPNtGobeH Dp N ^TKN + NO3(sc mtpureGe AHDRcper									
^ ToGDPNtGobeH Dp N	----	0.1	mg/L		287	....	....	....	....
EK945- : ToGDPnf opl f orwp Dp n sc mtpureGe AHDRcper									
ToGDPnf opl f orwp Dp n	----	0.01	mg/L		45/j	....	....	....	....
EN900: loHtu x DRDHue									
ø ToGDPAHtoHp	----	0.01	meq/L		00/4	....	....	....	....
ø ToGDPCDGoHp	----	0.01	meq/L		08/)	....	....	....	....
ø loHtu x DRDHue	----	0.01	%		) /1j	....	....	....	....
En929: OtPDHd - reDpe ^O&- (									
OtP& - reDpe	----	5	mg/L		))	....	....	....	....
En919: x touf ea tuDPO3cbeH mea DHd ^x Om(									
x touf ea tuDPO3cbeH mea DHd	----	2	mg/L		184	....	....	....	....
En95) S- : ToGDPneGoRewa BcdrouDrsoHp . StRuD beRuRDHwl									
C) 9 . C14 FrDuGoH ^pwa (	----	50	µg/L		<50	....	....	....	....

Analytical Results

Sub-Matrix: WATER / ^Matrix: WATER(				Sample ID	Coa l opGLeDuf DGe	....	....	....	....
				Sampling date / time	14-Dec-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2220259.99)	.....	.....	.....	.....
					Result	----	----	----	----
En95) S- : ToGDPneGoRewa BcdrouDrsoHp . SV StRuD bePuReDHwl									
C) 9 . C) 8 FrDuGoH	----	50	µg/L		<50	....	....	....	....
C) 0 . C27 FrDuGoH	----	100	µg/L		<100	....	....	....	....
C2j . C14 FrDuGoH	----	50	µg/L		<50	....	....	....	....
En95) S- : ToGDPReuo, erDsRe BcdrouDrsoHp . NEnM 29) 1 FrDuGoHp . StRuD bePuReDHwl									
>C) 9 . C89 FrDuGoH ^pwa (	----	100	µg/L		<100	....	....	....	....
En95) S- : ToGDPReuo, erDsRe BcdrouDrsoHp . SV NEnM 29) 1 FrDuGoHp . StRuD bePuReDHwl									
>C) 9 . C) 4 FrDuGoH	----	100	µg/L		<100	....	....	....	....
>C) 4 . C18 FrDuGoH	----	100	µg/L		<100	....	....	....	....
>C18 . C89 FrDuGoH	----	100	µg/L		<100	....	....	....	....
En979y95) : ToGDPneGoRewa BcdrouDrsoHp									
C4 . Cj FrDuGoH	----	20	µg/L		j 99	....	....	....	....
C) 9 . C) 8 FrDuGoH	----	50	µg/L		) 279	....	....	....	....
C) 0 . C27 FrDuGoH	----	100	µg/L		2179	....	....	....	....
C2j . C14 FrDuGoH	----	50	µg/L		1j 9	....	....	....	....
^ C) 9 . C14 FrDuGoH ^pwa (	----	50	µg/L		8909	....	....	....	....
En979y95) : ToGDPReuo, erDsRe BcdrouDrsoHp . NEnM 29) 1 FrDuGoHp									
C4 . C) 9 FrDuGoH	C6_C10	20	µg/L		779	....	....	....	....
^ C4 . C) 9 FrDuGoH a tHwp x TEX ^F) (	C6_C10-BTEX	20	µg/L		159	....	....	....	....
>C) 9 . C) 4 FrDuGoH	----	100	µg/L		2989	....	....	....	....
>C) 4 . C18 FrDuGoH	----	100	µg/L		2979	....	....	....	....
>C18 . C89 FrDuGoH	----	100	µg/L		) 19	....	....	....	....
^ >C) 9 . C89 FrDuGoH ^pwa (	----	100	µg/L		8209	....	....	....	....
^ >C) 9 . C) 4 FrDuGoH a tHwp NDI f GDReHe ^F2(	----	100	µg/L		2989	....	....	....	....
En979: x TEXN									
x eHzeHe	71-43-2	1	µg/L		<1	....	....	....	....
ToRveHe	108-88-3	2	µg/L		097	....	....	....	....
EGcRseHzeHe	100-41-4	2	µg/L		<2	....	....	....	....
a eG. & I DrD.XcReHe	108-38-3 106-42-3	2	µg/L		<2	....	....	....	....
orGo.XcReHe	95-47-6	2	µg/L		<2	....	....	....	....
^ ToGDPXcReHep	----	2	µg/L		<2	....	....	....	....
^ Swa oi x TEX	----	1	µg/L		097	....	....	....	....
NDI f GDReHe	91-20-3	5	µg/L		<5	....	....	....	....

Analytical Results

Sub-Matrix: WATER / Matrix: WATER(				Sample ID	Coa l opGLeDuf DGe	....	....	....	....
				Sampling date / time	14-Dec-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2220259.99)	.....	.....	.....	.....
					Result	----	----	----	----
En979S: TnB^V(yx TEX SwrrobDGep									
) /2.mtuf RoroeG DHe.m8	17060-07-0	2	%		) 90	....	....	....	....
ToRveHe.m7	2037-26-5	2	%		) 22	....	....	....	....
8.x roa oiRvoroseHzeHe	460-00-4	2	%		) 98	....	....	....	....

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
En979S: TnB^V(yx TEX SwrrobDGep			
) /2.mtuf RoroeG DHe.m8	17060-07-0	73	129
ToRveHe.m7	2037-26-5	70	125
8.x roa oiRvoroseHzeHe	460-00-4	71	129

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry) 14913 (Biology).

(WATER) EP020: Oil and Grease (O&G)

ghd.com

The Power of Commitment

By Royal Charter

Certificate of Registration

ENVIRONMENTAL MANAGEMENT SYSTEM - ISO 14001:2015

This is to certify that:

Dulverton Waste Management
Dulverton Landfill
Level 1, 17 Fenton Way
Devonport TAS 7310

Holds Certificate Number: **EMS 698108**

and operates an Environmental Management System which complies with the requirements of ISO 14001:2015 for the following scope:

For the management of a waste management facility comprising landfill and compost production operations.

For and on behalf of BSI:

Marc Barnes, Managing Director, BSI Group ANZ

Original Registration Date: 2008-06-15
Effective Date: 2021-07-04
Latest Revision Date: 2021-08-04
Expiry Date: 2024-07-16

...making excellence a habit.™

Certificate No: **EMS 698108**

Location	Registered Activities
Dulverton Waste Management Dulverton Landfill Level 1, 17 Fenton Way Devonport TAS 7310	For the management of a waste management facility comprising landfill and compost production operations.
Dulverton Waste Management 145 Dawson Siding Road Latrobe TAS 7307	For the management of a waste management facility comprising landfill and compost production operations.

Original Registration Date: 2008-06-15

Effective Date: 2021-07-04

Latest Revision Date: 2021-08-04

Expiry Date: 2024-07-16

Assessment Report

Dulverton Waste Management

Assessment dates	30/05/2023 (Please refer to Appendix for details)
Assessment Location(s)	Devonport, Latrobe Tasmania.
Report Author	Craig Hobbins
Assessment Standard(s)	ISO 14001:2015

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Executive Summary

Based on the results of this audit, it has been determined that the organisation fulfils the standards and audit criteria identified within the audit report, and it is deemed that the environmental management system achieves its intended outcomes. The audit objectives have been achieved. A recommendation for continued certification to ISO 14001:2015 is made.

Environmental management system and waste management process improvements continue to be generated, as detailed within the subsequent areas of this report. It is pleasing to observe the way the environmental management system is used to assist with waste management and associated infrastructure improvements. Future site planning and infrastructure improvements are designed to not only improve waste processing efficiencies, but to also reduce the site's environmental impacts. This aligns well with the requirements and intentions of ISO 14001.

No non-conformance or improvement opportunities were identified during this assessment. Enhanced details on audit findings and objective evidence sighted are detailed within the subsequent sections of this report.

I would like to thank Veronica and Matt for their hospitality and active participation in the audit.

Changes in the organisation since last assessment

The following changes in relation to organisation structure and key personnel involved in the certified management system were noted:

- Veronica Schilling was appointed as the new Chief Executive Officer in November 2022.

No change in relation to the audited organisation’s activities, products or services covered by the scope of certification was identified.

There was no change to the reference or normative documents which is related to the scope of certification.

NCR summary

There were no outstanding nonconformities to review from previous assessments.

No new nonconformities were identified during the assessment. Enhanced detail relating to the overall assessment findings is contained within subsequent sections of the report.

Assessment objective, scope and criteria

The objective of the assessment was to conduct a surveillance assessment and look for positive evidence to ensure that elements of the scope of certification and the requirements of the management standard are effectively addressed by the organisation's management system and that the system is demonstrating the ability to support the achievement of statutory, regulatory and contractual requirements and the organisation's specified objectives, as applicable with regard to the scope of the management standard, and to confirm the on-going achievement and applicability of the forward strategic plan and where applicable to identify potential areas for improvement of the management system.

The scope of the assessment is the documented management system with relation to the requirements of ISO 14001:2015 and the defined assessment plan provided in terms of locations and areas of the system and organisation to be assessed.

Criteria:

- ISO 14001:2015.
- DWM Environmental Management System Manual 30th November 2021.

Statutory and regulatory requirements

Dulverton Waste Management continues to operates under EPA Licence Numbers Landfill 7158/3 and DORF 7852/1. No changes have occurred to any licensing requirements and operating conditions since the previous BSI Assessment. The environmental management system continues to include waste management process controls, as well as reporting requirements implemented for the purpose of ensuring EPA licence compliance.

Processes and systems in place are sound and meet requirements.

Assessment Participants

Name	Position	Opening Meeting	Closing Meeting	Interviewed (processes)
Veronica Schilling	Chief Executive Officer	X	X	X
Matt Layton	Operations and Project Officer	X	X	X

BSI assessment team

Name	Position
Craig Hobbins	Team Leader

Assessment conclusion and recommendation

The audit objectives have been achieved and the certificate scope remains appropriate. The audit team concludes based on the results of this audit that the organisation does fulfil the standards and audit criteria identified within the audit report and it is deemed that the management system continues to achieve its intended outcomes.

RECOMMENDED - The audited organisation can be recommended for continued certification to the above listed standards, and has been found in general compliance with the audit criteria as stated in the above-mentioned audit plan.

Use of certification documents, mark / logo or report

The use of the BSI certification documents and mark / logo is effectively controlled.

Findings from this assessment

General requirements, management system implementation

Dulverton Waste Management's environmental management system information and process management controls were used as a reference during this assessment.

Management system implementation and maintenance processes covering the site environmental controls, site management processes and waste management operations were validated through an examination of infrastructure and waste management controls, changes and improvements as well as auditing and management review processes. The audit process and methodology confirmed controls for system documentation access, risk management processes, and system implementation across all facets of the business examined.

Dulverton Waste Management's Covid-19 risk management policies and procedures continue to be implemented. COVID management controls include risk assessment processes, cleaning and hygiene arrangements, as well as flexible working arrangements. Measures and controls are being monitored.

Processes and documentation in place are sound and meet requirements.

Records / documented information examined:

- DWM Environmental Management System Manual 30th November 2021.
- Confirmed in interview with the Chief Executive Officer and Operations and Project Officer.

Certification scope

The scope is confirmed as follows with no changes required:

"For the management of a waste management facility comprising landfill and compost production operations."

Changes and improvements since the previous BSI Assessment

Environmental management, processing and infrastructure improvements and changes made since the previous BSI Assessment are impressive and include:

- A new composting processing facility is under construction. The facility is designed to be 100% self-contained, and will capture all waste bi-products. Bi-products are planned to be sold to market. The future waste processing plan for the site is to process 48% of waste product as organic waste, and 52% as landfill.
- FOGO and waste packaging reduction strategies governed under the Tasmanian Waste Action Plan 2021 are in place. A shift in the waste products being processed has occurred, primarily through an increase in FOGO waste.
- A review of the DWM Strategic Plan occurred. This included a review of operations and waste treatment risks arising from changes occurring as result of the waste action plan.
- The Burnie Waste Transfer Station is to be managed by Dulverton Waste Management. Operations are to be contracted to the existing waste management contractor at the landfill / composting site (Graco).

Site and waste management improvements observed during the site visit included:

- A process to improve site boundary fencing is in place, which includes an upgrade of the litter fencing.
- Leachate ponds are being replaced by tanks, with the existing ponds to be used as a backup to deal with events such as severe rainfall. This improvement reduces the amount of site waste water, including leachate that is required to be discharged.
- CCTV cameras are installed across the site, improving incident investigation processes.

Policy framework

Dulverton Waste Management has developed and implemented an environmental management policy addressing the requirements of the ISO 14001 Standard. No changes have been made to the policy since the previous BSI Assessment. The policy is made available as documented information and is accessible to all interested parties. Compliance with the requirements of the Standard continues.

Records / documented information examined:

- Environmental Policy (12/8/2020).
- Confirmed in interview with the Chief Executive Officer and Operations and Project Officer.

Objectives and targets

Objectives and targets relevant to the Dulverton Waste Management are developed, documented and implemented. The Environmental Objectives Register refers. The register was reviewed and updated in November 2023 to include objectives and targets relevant to the reduction of organics in the landfill, the minimisation of leachate in irrigation areas, and to increase landfill capacity. The register outlines objective status details.

Compliance with the requirements of the standard is sound.

Records / documented information examined:

- Environmental Objectives Register.
- Confirmed in interview with the Chief Executive Officer and Operations and Project Officer.

Environmental aspects and impacts

Environmental aspects and impacts associated with the landfill operations and composting processes were examined with no changes made since the previous BSI Assessment. Environmental aspects and impacts continue documented within the Environmental Management System Aspects and Impacts Register 1/2/2023. This is a live document, continually reviewed and updated to reflect aspect and impact changes as the site changes and evolves. Changes are highlighted in 'pink'. Once the board approves changes, the colour coding is removed.

Compliance with the requirements on the Standard is sound.

Records / documented information and processes examined:

- Environmental Management System Aspects and Impacts Register 1/2/2023.
- Confirmed in interview with the Chief Executive Officer and Operations and Project Officer.

Management review processes

Management review processes are conducted in accordance with the requirements of the Standard and include an examination of all management review input and output requirements. Minutes from the review meeting held in November 2022 were examined. Meeting minutes demonstrate a comprehensive overview of environmental management performance, compliance and improvement.

Processes in place are sound and meet requirements.

Records / documented information examined:

- Management Review Meeting Minutes 10/11/2022.
- Confirmed in interview with the Chief Executive Officer and Operations and Project Officer.

Internal audit

Internal audit planning and scheduling continues to be managed and programmed as required by the Standard. Records and reports provide a detailed summary of audit findings and results, with summary detail reported during management review processes. Corrective action processes arising from audits when required include root cause analysis activities.

Records from the internal audit conducted on the 18th of February 2023 were sighted. The audit was conducted by an External Consultant. No significant environmental management findings were raised.

Internal auditing processes meet all requirements of the Standard.

Records / documented information examined:

- Internal Audit Report 18th of February 2023.
- Confirmed in interview with the Chief Executive Officer and Operations and Project Officer.

Control of non-conformances, incident management, corrective action

Non-conformance management and corrective action processes continue to be implemented, focusing on environmental management related issues. Procedures for corrective action activities include an examination of root cause issues as required. The process extends to customer / stakeholder complaints. As confirmed in interview with the Operations and Project Officer, no significant environmental issues or licence breaches have occurred since the previous BSI Assessment.

Processes in place are sound and meet requirements.

Records / documented information examined:

- Environmental and General Corrective Action Register.
- Confirmed in interview with the Chief Executive Officer and Operations and Project Officer.

Operation control, process management

A site visit was conducted at the landfill and composting operations, examining environmental management controls. The following controls and infrastructure were examined and confirmed to be compliant with the environmental management system and the standards requirements.

- Site entry and exit access points (including weighbridge and boom gate), and site security fencing.
- Litter netting.
- Leachate ponds and new tank installation process sighted.
- Composting operational controls (leachate, windrow and stockpile identification).
- Pest and weed management controls confirmed.
- Landfill operations confirmed, with no fundamental operational changes since the previous BSI Assessment. A new cell has however been established.

Records and processes relating to any complaint about the client that has been referred to BSI

No complaints regarding Dulverton Waste Management are known to have been directed to BSI by customers or stakeholders.

Next visit objectives, scope and criteria

The objective of the assessment is to conduct a re-assessment of the existing certification to ensure the elements of the proposed scope of registration and the requirements of the management standard are effectively addressed by the organisation's management system.

The scope of the assessment is the documented management system with relation to the requirements of ISO 14001:2015 and the defined assessment plan provided in terms of locations and areas of the system and organisation to be assessed.

Criteria:

- ISO 14001:2015.
- DWM Environmental Management System Manual 30th November 2021.

Please note that BSI reserves the right to apply a charge equivalent to the full daily rate for cancellation of the visit by the organisation within 30 days of an agreed visit date.

Next Visit Plan

Plan to be provided by BSI Assessor prior to next assessment.

Appendix: Your certification structure & ongoing assessment programme

Scope of Certification

EMS 698108 (ISO 14001:2015)

For the management of a waste management facility comprising landfill and compost production operations.

Assessed location(s)

Devonport / EMS 698108 (ISO 14001:2015)

Location reference	**0047695802-000**
Address	Dulverton Waste Management Dulverton Landfill Level 1, 17 Fenton Way Devonport Tasmania 7310 Australia
Visit type	Continuing assessment (surveillance)
Assessment number	3572553
Assessment dates	30/05/2023
Deviation from Audit Plan	No
Total number of Employees	6
Effective number of Employees	6
Scope of activities at the site	For the management of a waste management facility comprising landfill and compost production operations.
Assessment duration	0.5 day(s)

Latrobe / EMS 698108 (ISO 14001:2015)

Location reference	**0047695802-001**
Address	Dulverton Waste Management 145 Dawson Siding Road Latrobe Tasmania 7307 Australia
Visit type	Continuing assessment (surveillance)
Assessment number	3573785
Assessment dates	30/05/2023
Deviation from Audit Plan	No
Total number of Employees	6
Effective number of Employees	6
Scope of activities at the site	For the management of a waste management facility comprising landfill and compost production operations.
Assessment duration	0.5 day(s)

Certification assessment program

Certificate Number - EMS 698108
Location reference - 0047695802-000

		Audit1	Audit2	Audit3	Audit4
Business area/Location	**Date (mm/yy):**	05/21	05/22	05/23	04/24
	Duration (days):	1	1	1	2
Scope and Policy		X	X	X	X
Organisational context		X		X	X
Leadership and Commitment		X	X	X	X
Management System Support		X		X	X
Planning and Resources		X	X		X
Human Resource Management			X	X	X
Control of Documents and Records		X			X
Objectives / Aspects /Performance Monitoring & Measurement		X	X	X	X
Management Review		X	X	X	X
Internal Audits		X	X	X	X
Actions / Non-Conformity / Incidents / Complaints		X	X	X	X
Risk Management / Prevention		X	X	X	X
Legal and Other Requirements		X	X	X	X
Improvement		X	X	X	X
Operational Control		X	X	X	X

Expected outcomes for accredited certification.

What accredited management system certification means?

To achieve an organisation's objectives related to the Expected Outcomes intended by the management systems standard, the accredited management system certification is expected to provide confidence that the organisation has a management system that conforms to the applicable requirements of the specific ISO standard.

In particular, it is to be expected that the organisation

- has a system which is appropriate for its organisational context and certification scope, a defined policy appropriate for the intent of the specific management system standard and to the nature, scale and impacts of its activities, products and services over their lifecycles, is addressing risks and opportunities associated with its context and objectives;

- analyses and understands customer needs and expectations, as well as the relevant statutory and regulatory requirements related to its products, processes and services;
- ensures that product, process and service characteristics have been specified in order to meet customer and applicable statutory/regulatory requirements;
- has determined and is managing the processes needed to achieve the Expected Outcomes intended by the management system standard;
- has ensured the availability of resources necessary to support the operation and monitoring of these products, processes and services;
- monitors and controls the defined product process and service characteristics;
- aims to prevent nonconformities, and has systematic improvement processes in place including the addressing of complaints from interested parties;
- has implemented an effective internal audit and management review process;
- is monitoring, measuring, analysing, evaluating and improving the effectiveness of its management system and has implemented processes for communicating internally, as well as responding to and communicating with interested external parties.

What accredited management systems certification does not mean?

It is important to recognize that management system standards define requirements for an organisation's management system, and not the specific performance criteria that are to be achieved (such as product or service standards, environmental performance criteria etc).

Accredited management systems certification should provide confidence in the organisation's ability to meet its objectives related to the intent of the management system standard. A management systems audit is not a full legal compliance audit, and does not necessarily ensure ethical behaviour or that the organisation will always achieve 100% conformity and legal compliance, though this should of course be a permanent goal.

Within its scope of certification, accredited management systems certification does not imply or ensure, for example:

- that the organisation is providing a superior product and service, or
- that the organisation's product and service itself is certified as meeting the requirements of an ISO (or any other) standard or specification.

Definitions of findings:

Non-conformity:

Non-fulfilment of a requirement.

Major nonconformity:

Nonconformity that affects the capability of the management system to achieve the intended results.

Nonconformities could be classified as major in the following circumstances:

- If there is a significant doubt that effective process control is in place, or that products or services will meet specified requirements;
- A number of minor nonconformities associated with the same requirement or issue could demonstrate a systemic failure and thus constitute a major nonconformity.

Minor nonconformity:

Nonconformity that does not affect the capability of the management system to achieve the intended results.

Opportunity for improvement:

It is a statement of fact made by an assessor during an assessment, and substantiated by objective evidence, referring to a weakness or potential deficiency in a management system which if not improved may lead to nonconformity in the future. We may provide generic information about industrial best practices but no specific solution shall be provided as a part of an opportunity for improvement.

Observation:

It is ONLY applicable for those schemes which prohibit the certification body to issue an opportunity for improvement.

It is a statement of fact made by the assessor referring to a weakness or potential deficiency in a management system which, if not improved, may lead to a nonconformity in the future.

How to contact BSI

Visit the BSI Connect Portal, our web-based self-service tool to access all your BSI assessment and testing data at a time that's convenient to you. View future audit schedules, submit your corrective action plans and download your reports and Mark of Trust logos to promote your achievement. Plus, you can benchmark your performance using our dashboards to help with your continual improvement journey.

Should you wish to speak with BSI in relation to your certification, please contact your local BSI office – contact details available from the BSI website:

https://www.bsigroup.com/en-AU/contact-us/

Notes

This report and related documents are prepared for and only for BSI's client and for no other purpose. As such, BSI does not accept or assume any responsibility (legal or otherwise) or accept any liability for or in connection with any other purpose for which the Report may be used, or to any other person to whom the Report is shown or in to whose hands it may come, and no other persons shall be entitled to rely on the Report. If you wish to distribute copies of this report external to your organisation, then all pages must be included.

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This audit was conducted through document reviews, interviews and observation of activities. The audit method used was based on sampling the organisation's activities and it was aimed to evaluate the fulfilment of the audited requirements of the relevant management system standard or other normative document and confirm the conformity and effectiveness of the management system and its continued relevance and applicability for the scope of certification.

As this audit was based on a sample of the organisation's activities, the findings reported do not imply to include all issues within the system.

Regulatory compliance

BSI requires to be informed of all relevant regulatory non-compliance or incidents that require notification to any regulatory authority. Acceptance of this report by the client signifies that all such issues have been disclosed as part of the assessment process and agreement that any such non-compliance or incidents occurring after this visit will be notified to BSI as soon as practical after the event.