Best Available Techniques and Operating Techniques

Berwick Farm Landfill

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Contents

[1.0 INTRODUCTION 4](#_Toc172545034)

[1.1 Current Environmental Permit 4](#_Toc172545035)

[1.2 2024 – Environmental Permit Variation Application – Permitting Approach 4](#_Toc172545036)

[1.2.1 BAT Assessment 4](#_Toc172545037)

[1.3 The Site 4](#_Toc172545038)

[1.4 Report Structure 5](#_Toc172545039)

[2.0 Management 6](#_Toc172545040)

[2.1 Management System 6](#_Toc172545041)

[2.1.1 Management Structure and Responsibilities 6](#_Toc172545042)

[2.2 Technical Competence and Training 6](#_Toc172545043)

[2.3 Site Security 7](#_Toc172545044)

[2.4 Display of Environmental Permit 7](#_Toc172545045)

[2.5 Managing Documentation and Records 7](#_Toc172545046)

[2.6 Reporting Non-Compliance and Taking Corrective Action 7](#_Toc172545047)

[2.7 Auditing and Legal Compliance 8](#_Toc172545048)

[2.8 Monitoring, Measuring and Reviewing Environmental Performance 8](#_Toc172545049)

[2.9 Operational Control, Preventative Maintenance and Calibration 8](#_Toc172545050)

[2.10 Design and Construction Quality Assurance 8](#_Toc172545051)

[3.0 Operations 9](#_Toc172545052)

[3.1 Overview of the Proposed Leachate Treatment System 9](#_Toc172545053)

[3.1.1 Schedule 1 Listed Activity 10](#_Toc172545054)

[3.2 Process Description 10](#_Toc172545055)

[3.3 Site Infrastructure and Equipment 11](#_Toc172545056)

[3.3.1 Site Identification Board 11](#_Toc172545057)

[3.3.2 Plant and Equipment 11](#_Toc172545058)

[3.3.3 Plant Maintenance 11](#_Toc172545059)

[4.0 Accident Management Plan 13](#_Toc172545060)

[4.1 Hazard Identification 13](#_Toc172545061)

[4.1.1 Unauthorised Waste 13](#_Toc172545062)

[4.1.2 Fire 13](#_Toc172545063)

[4.1.3 Loss of Containment 13](#_Toc172545064)

[4.1.4 Plant Failure 15](#_Toc172545065)

[4.1.5 Security and Vandalism 15](#_Toc172545066)

[4.1.6 Flooding 15](#_Toc172545067)

[5.0 Emissions Control 17](#_Toc172545068)

[5.1 Point Source Emissions to Air 17](#_Toc172545069)

[5.2 Point Source Emissions to Groundwater 17](#_Toc172545070)

[5.3 Point Source Emission to Surface Water 17](#_Toc172545071)

[5.4 Point Source Emissions to Sewer 17](#_Toc172545072)

[5.5 Point Source Emissions to Land 17](#_Toc172545073)

[5.6 Fugitive Emissions to Air 17](#_Toc172545074)

[5.7 Fugitive Emissions to Surface Water 17](#_Toc172545075)

[5.7.1 Containment Bunding 18](#_Toc172545076)

[5.8 Odour 18](#_Toc172545077)

[5.9 Noise and Vibration 18](#_Toc172545078)

[5.10 Pest Control 19](#_Toc172545079)

[5.11 Litter 19](#_Toc172545080)

[5.12 Mud 19](#_Toc172545081)

[6.0 Best Available Techniques Assessment 20](#_Toc172545082)

[7.0 Information 24](#_Toc172545083)

[7.1 Reporting and Notifications 24](#_Toc172545084)

[7.1.1 Changes in Technically Competent Persons 24](#_Toc172545085)

[7.1.2 Waste Types and Quantities 24](#_Toc172545086)

[7.1.3 Relevant Convictions 24](#_Toc172545087)

[7.1.4 Notification of Change of Operator’s or Holder’s Details 24](#_Toc172545088)

[7.1.5 Adverse Effects 24](#_Toc172545089)

Drawings

**Drawing 001**  Site Location Plan

**Drawing 002**  Proposed Site Layout

**Drawing 003**  Environmental Site Setting

**Drawing 004**  Cultural and Natural Heritage

**Drawing VSL.BF.001.4.1.GA** Berwick Farm MSP GA

Appendices

Appendix A IMS Summary

Appendix B BAT Conclusions Assessment

# INTRODUCTION

SLR Consulting Ltd (SLR) has been instructed by SUEZ Recycling and Recovery UK Limited (SUEZ) to prepare an environmental permit (EP) variation application for Berwick Farm Landfill at Berwick Lane, Hallen, Bristol BS10 7RS, under the Environmental Permitting (England and Wales) Regulations 2016 (as amended).

The Site is operated by, and the EP is in the name of Cliffeville Limited (a subsidiary of SUEZ Recycling and Recovery Holdings UK Ltd, referred to from herein as SUEZ).

This variation application seeks to add a physico-chemical leachate treatment system within the footprint of Berwick Farm Landfill, to remove dissolved methane from leachate generated by the closed Berwick Farm Landfill.

## Current Environmental Permit

The Site is a non-hazardous landfill and is permitted under a bespoke EP (EA Ref: EPR/LP3199FS). The Site was originally authorised under a Waste Disposal License (Ref: L/NA/T/134M) issued to A.B Collard Esq. on 14th December 1982. The licence was subsequently transferred to Cliffeville Limited on 7th September 1994. Cliffeville Limited became a registered subsidiary of SUEZ Recycling and Recovery Holdings UK Ltd in 2008. This license was most recently varied in April 2012 (EA Ref: EPR/LP3199FS).

The site is closed, capped, and restored, however is not in definitive closure as the closure report has not yet been approved by the EA.

## 2024 – Environmental Permit Variation Application – Permitting Approach

This EP variation does not seek to amend any activities related to the operation of the closed landfill. This variation seeks only to add a physico chemical leachate treatment activity via a Methane Stripping Plant (MSP) to treat leachate arising from the landfill prior to discharge to sewer.

The site will process approximately 650m3 of leachate per day. However, the discharge rate will be variable, and therefore the figure cannot be multiplied up to get the annual discharge volume.

No changes to the EP boundary are proposed as part of this variation, with the MSP to be located within the existing EP boundary near the site entrance and existing landfill gas utilisation compound, as shown on Drawing 002. Furthermore, there is no change proposed to the existing permitted point source emission to sewer other than the methane concentration.

### BAT Assessment

The inclusion of the methane stripping plant (MSP), as a listed activity, requires assessment under the relevant Best Available Technique (BAT) guidance detailed within this report. BAT Assessments are only required for Schedule 1 listed activities included within the EP Regulations.

The MSP operation is listed under Section 5.4 and so therefore only the MSP has been considered.

This BAT Assessment should be read in conjunction with the Environmental Risk Assessment (Ref: 410.065456.00001/ERA) submitted with this EP variation application.

## The Site

The Site is located off Berwick Lane, in the village of Hallen in South Gloucestershire, approximately 8km northwest of Bristol’s city centre. The M5 road network runs in a north-east to south-west direction, within 420m of the southern site boundary. The site is centred on National Grid Reference (NGR) ST 55400 80600.

Beyond the M49 motorway to the north is the industrial TGE Site Bristol. Land to the north east and east is predominantly open grassland for agricultural use. A livestock farm is located to the southwest which includes residential dwellings. Open land and woodland are located to the south, as well as the nearest residential dwelling on Berwick Lane. To the southwest is a historic landfill and to the west is Boscombe Business Park featuring commercial warehouses.

The site location plan is shown on Drawing 001 and the proposed site layout on Drawing 002. The surrounding land uses and local receptors within 500m are illustrated on Drawing 003 and cultural and natural heritage receptors within 2km are identified on Drawing 004.

A summary of the site’s immediate surrounding land uses is identified in Table 1-1 below.

Table 1‑1 Surrounding Land Uses

|  |  |
| --- | --- |
| **Direction** | **Description** |
| North | M49 Motorway, Woodland and Agricultural Land. Beyond this lies TGE Site Bristol, and commercial/industrial premises. |
| East | Livestock Farm, Agricultural Land and Residential Properties |
| South | Berwick Lane, Agricultural Land, Residential Properties, Woodland and the M5 |
| West | Boscombe Business Park and Historic Landfill, and the residential area of Hallen |

## Report Structure

This report describes the operating techniques that will be implemented at the facility in relation to the additions detailed above, to ensure continued compliance with the conditions of the EP. The report is divided into the following sections:

* **Section 1**  Introduction
* **Section 2** Management
* **Section 3**  Operations
* **Section 4**  Accident Management Plan
* **Section 5**  Emissions Control
* **Section 6**  BAT Assessment
* **Section 7**  Information

# Management

## Management System

SUEZ operates all their waste facilities through an Integrated Management System (IMS). A summary of the IMS is included as Appendix A.

SUEZ is externally certified to the following standards registered through the British Standards Institute (BSI):

* ISO14001 (Environmental Management);
* ISO 9001 (Quality Management);
* ISO 45001 (Occupational Health and Safety Management).

The above standards form part of the wider IMS that governs operations at the facility.

The IMS assists in maintaining compliance with regulatory requirements and managing environmental impacts. The operational management procedures will ensure that:

* The risks that the activities pose to the environment are identified;
* The measures that are required to minimise the risks are identified;
* The activities are managed in accordance with the IMS and this BAT Assessment and Operating Techniques (BATOT) document;
* Performance against the management system is audited at regular intervals; and
* The EP is complied with.

Consequently, operational procedures for the management of the facility will ensure that all appropriate pollution prevention and control techniques will be delivered reliably an on an integrated basis.

### Management Structure and Responsibilities

The Site Manager will be responsible for day to day operations and compliance with the EP (EPR/LP3199FS).

The facility will be supervised by members of staff who will be suitably trained and fully conversant with the requirements of the EP regarding:

* Operational procedures and controls;
* Maintenance;
* Record-keeping;
* Emergency action plans; and
* Notifications to the EA.

## Technical Competence and Training

Berwick Farm Landfill is a closed site, however will be managed by sufficient numbers of staff competent to operate the site without causing accident or pollution. Staff have clearly defined roles and responsibilities. The additional proposed waste management activities to be undertaken at the facility will be under the overall control of a technically competent person who holds a relevant Certificate of Technical Competence (COTC) under the Waste Management Industry Training and Advisory Board (WAMITAB) scheme.

As the landfill is a closed site, training will be provided when:

* A new employee/site operative begins work on site;
* When new controls and equipment are introduced on site (i.e. the proposed MSP);
* Processes on site are amended; and
* If an audit identifies a particular training need.

An assessment of training needs is carried out to identify the posts for which specific environmental awareness training is needed, and the scope and level of such training relevant to their role. The assessment of training needs is reviewed on an annual basis.

The training programme ensures that relevant staff will be fully aware of the following:

* Regulatory implications of the EP for the facility and their specific work activity;
* All potential environmental effects from operations under normal and abnormal circumstances;
* The need to report deviations from the EP;
* Prevention of accidental emissions and action to be taken should accidental emissions occur; and
* Records of training needs and training received will be maintained.

## Site Security

The site is enclosed by a mixture of fencing and hedgerow around the perimeter of the entire landfill site which the leachate treatment facility is situated within. In addition, the MSP will be surrounded by its own security fencing. Security gating is locked outside of operational hours. This will minimise the risk of unauthorised visitors being present at the site.

Gates, fencing and hedges are inspected regularly by site operatives to identify deterioration and damage, and the need for any repairs. In the event that damage is sustained repairs are made within timescales defined by the risk involved. If this is not possible, suitable measures are taken to prevent any unauthorised access to the site and permanent repairs are affected as soon as possible.

Visitors will be by appointment only and logged via an online diary on arrival at the site by the site manager or technically competent person. All visitors are accompanied by a member of staff for the duration of their visit.

## Display of Environmental Permit

A copy of the EP is kept available for all staff and contractors whose work may have an impact on the environment. This will include any revisions, updates or changes to the EP.

## Managing Documentation and Records

Controls will be in place to ensure that all documents are issued, revised and maintained in a consistent fashion. This will extend to cover the proposed activities.

## Reporting Non-Compliance and Taking Corrective Action

Non-compliances detected on site will be reported, investigated and rectified. Staff maintain awareness of non-compliance in the following areas:

* Actual or potential non-compliance;
* System failure discovered at internal audit;
* Suppliers or subcontractors breaking the agreed operating rules;
* Incidents, accidents, and emergencies;
* Other operational system failure; and
* Complaints.

The action taken in response to the non-conformance may include:

* Obtaining additional information on the nature and extent of non-conformance;
* Discussing and testing alternative solutions;
* Modifying procedures and responsibilities;
* Seeking approval for additional resources and training; and
* Contacting suppliers and contractors.

## Auditing and Legal Compliance

There is a formalised internal auditing procedure to ensure the facility is audited at defined intervals and that the progress of corrective and preventative action is monitored.

## Monitoring, Measuring and Reviewing Environmental Performance

Environmental performance will continue to be reviewed regularly, and any necessary actions will be taken.

## Operational Control, Preventative Maintenance and Calibration

This document will complement operational procedures to ensure effective control of operations, the use of approved suppliers and contract services, the maintenance of operational equipment and the calibration of monitoring equipment.

All additional plant and equipment will be subject to a programme of planned preventative maintenance which follows the inspection and maintenance schedule recommended by the manufacturer.

## Design and Construction Quality Assurance

All relevant elements of the facility will be designed in accordance with recognised standards, methodologies and practices.

The design process uses a risk-based approach and is appropriately documented using drawings, specifications and method statements to provide an adequate audit trail.

Construction Quality Assurance (CQA) plans will govern the construction of any key environmental control infrastructure. These CQA plans will be prepared by competent and suitably qualified persons and will detail the assurance and validation process.

A competent and suitably qualified person will supervise the construction activities and prepare a CQA validation report confirming that the key construction activities have been carried out in accordance with the CQA plan or detailing and justifying any deviances from the agreed CQA plan.

# Operations

## Overview of the Proposed Leachate Treatment System

Leachate generated at the site is currently collected via drainage pipework within the waste mass and directed under gravity towards one of three concrete collection sumps (MH1, MH6, and MH7) from where it is discharged untreated to sewer via gravity under existing permitted point source emissions to sewer.

Each of these three collection sumps has an individual connection to the Frome Valley foul sewer, operated by Wessex Water, facilitated by existing Trade Effluent Discharge Consents.

New surface laid leachate pipework is to be constructed at the site in order to facilitate transfer of leachate from existing collection sumps to the MSP. It is anticipated that the location of the MSP will be sited close to the site entrance, adjacent to the former weighbridge. The new surface laid leachate pipework will deliver leachate from the three existing collection sumps to this location. There is currently no storage facility present at the site.

The MSP process involves the aeration of leachate in a series of aeration tanks to remove dissolved methane from the liquid, followed by transfer into a pumping chamber. The MSP will consist of 14 tanks, which comprises 3 lanes of 4 reaction vessels, and 2 pumping tanks, as illustrated on Drawing VSL.BF.001.4.1.GA. Leachate will be discharged from the MSP to sewer under an existing Trade Effluent Discharge Consent from Wessex Water. There is no change proposed to the existing permitted point source emissions to sewer other than the methane concentration.

There are currently three sewer discharge connections at COL (MH6), COLA (MH7) and Monks Well (MH1). Quantitative leachate monitoring at the sewer discharge connection points is undertaken in accordance with the approved Leachate Management Plan, and the site’s EP. It is anticipated that under normal operating conditions when the MSP is operational the treated effluent from the MSP will discharge at a single location within the Monks Well sump, shown in Drawing 002. Under abnormal conditions such as a power cut, it would not be possible to pump leachate from the collection sumps (COL, and COLA) to the MSP. The system will be safely shut down, and the relevant maintenance team will be deployed. Whilst the leachate treatment system is non-operational, leachate will discharge to sewer at the existing three locations (COL, COLA, and Monks Well) under gravity. There is therefore an operational requirement for SUEZ to retain all existing sewer discharge connection points. Leachate at all discharge points will continue to be monitored in accordance with the Leachate Management Plan and EP.

Power will be provided to the MSP by the Site’s landfill gas utilisation compound. The MSP will be fully automated and controlled by a SCADA system for 24-hour operation 365 days per year.

A computer screen shot of a blueprint

Description automatically generatedThe tank layout is shown in Figure 1 below.

Figure 1 Leachate Treatment Plant Tank Layout

### Schedule 1 Listed Activity

As the leachate treatment system will treat and dispose of over 50 tonnes of effluent per day it is an activity that falls within Section 5.4 of Schedule 1 of the EP regulations, specifically:

* Section 5.4 A1(a)(ii) Disposal of non-hazardous waste in a facility with a capacity exceeding 50 tonnes per day by physico-chemical treatment. – a D9 activity.

## Process Description

The MSP will have 14 tanks, and 3 process lanes with flow control. Each lane is designed to accommodate a third of the daily maximum flow of 650m3. In normal operation, all of the flow will pass through lane 1 but if the flow rate increases, then the additional raw leachate will directed to lanes 2 and then 3.

A leachate balance tank may be included within the LTP design, and would be included adjacent to the MSP.

The new surface laid leachate pipework (made of SDR11 high density polyethylene (HDPE) plastic, suitable for use with landfill leachate) will transfer raw leachate from the collection sumps to the methane stripping plant. Leachate from the landfill will be pumped directly into the first reaction tank of each process lane.

There are a total of 12 reaction vessels, and 2 pumping tanks. The tanks will be made of HDPE plastic, suitable for use with landfill leachate. The tanks will be fully enclosed and vented via activated carbon filters. No monitoring of gases inside the tanks is proposed. Each tank will have a maximum capacity of 4.5 m3 with a 4 m3 working capacity. High level float switches will be used to prevent overtopping of tanks. When a float switch is activated, it will close the inlet valve to the plant to prevent further flow of leachate to the tanks.

Methane is stripped by counter-current aeration using fine bubble diffusers. The leachate is forced up, down and from side to side, maximising retention time and the potential for methane stripping and also for oxidation of sulphide. Sulphide may potentially require additional treatment with dosing of hydrogen peroxide.

From the fourth aeration cell, leachate then passes to the pumping tank allowing treated leachate to be discharged to sewer by submersible pump under an existing permitted point source emission to sewer. There is no change proposed to the existing permitted point source emission to sewer other than the methane concentration.

Under normal operating conditions when the MSP is operational the treated effluent from the MSP will discharge at a single location within the Monks Well Sump. Under abnormal conditions such as a power cut, it would not be possible to pump leachate from the collection sumps (COL, and COLA) to the MSP. The system will be safely shut down, and the relevant maintenance team will be deployed. Whilst the leachate treatment system is non-operational, leachate will discharge to sewer at the existing three locations (COL, COLA, and Monks Well) under gravity. There is therefore an operational requirement for SUEZ to retain all existing sewer discharge connection points. Leachate at all discharge points will continue to be monitored in accordance with the Leachate Management Plan and EP.

## Site Infrastructure and Equipment

### Site Identification Board

A site identification board which is easily readable from outside the entrance during daylight hours of daylight is located at the entrance to the wider site.

The identification board will be inspected at least once per week. In the event of damage or defect that significantly affects the legibility of the board it will be repaired or replaced within a timescale agreed upon with the EA.

The board displays the following information:

* Site name and address;
* Permit holder;
* Permit number;
* Emergency contact name and telephone number;
* EA national telephone numbers.

### Plant and Equipment

The following items of plant and equipment are held on site:

* HDPE Tanks;
* Pumps;
* Flow meters;
* Programable Logic Controller (PLC);
* Air blowers;
* Antifoam chemical dosing pumps; and
* Peroxide (or similar) dosing equipment.

### Plant Maintenance

All maintenance audits and monitoring are carried out in accordance with the manufacturer’s specifications, which are available online.

SUEZ take a proactive approach involving a planned preventative maintenance program for the site. A Maintenance Checklist allows all site operatives to actively take part in the site’s maintenance schedule.

The checklist is completed and maintained by the Site Manager or technically competent person, with the following information compiled:

* The item that requires maintenance;
* How often maintenance needs to be carried out (daily, weekly, monthly, or yearly);
* A record of any particular maintenance instructions; and
* Who on site is responsible for each maintenance check.

The checklist ensures that all operatives are aware of their particular responsibilities for maintenance checking. The Site Manager or technically competent person ensures that all site operatives are aware of any amendments and additions to the checklist.

When a maintenance issue is dealt with, a maintenance record form is completed for each separate piece of equipment or infrastructure. The record form includes the following information to be recorded:

* The item requiring maintenance;
* The frequency of the required maintenance;
* Completed date and who carried out by; and
* Any particular comments.

The record forms are available via online applications to ensure there is access for all site operatives.

In the event that plant replacement is required, SUEZ will choose new plant with the lowest emission standard available at the time of purchase.

The following control measures are in place to reduce emissions as much as possible during operations:

* Planned preventative maintenance schedule to be rigidly followed to avoid the operation of poor performing or inefficient plant.

# Accident Management Plan

SUEZ recognises the importance of the prevention of accidents that may have environmental consequences and that it is crucial to limit those consequences.

An accident management plan for the proposed additional activities will be implemented and maintained at the site to ensure the site and site staff are fully prepared for any such incidents. The accident management plan will be reviewed at least every two years or as soon as practicable after an incident, with changes made accordingly to minimise the risk of occurrence.

The following accident management plan describes the techniques that will be implemented to minimise the risks posed to the environment. Activities affecting the health and safety (H&S) of operatives, contractors and visitors will be separately managed in compliance with H&S regulation and company H&S policy.

## Hazard Identification

The following potential hazards have been identified:

* Unauthorised waste;
* Fire;
* Loss of containment – spillage and leakage;
* Plant failure;
* Security and vandalism; and
* Flooding.

The following sections summarise the measures necessary to minimise the potential causes and consequences of accidents.

### Unauthorised Waste

Only leachate from the existing landfill will be transferred to the MSP. No externally imported waste will be treated.

### Fire

Landfill leachate does not pose a fire risk. Leachate does not burn and therefore there is no need to consider the consequences of fire or firefighting. Residual landfill gas emissions which have the potential to be flammable will be emitted from the treatment plant. These will disperse to atmosphere and do not represent a significant risk of fire.

Permitted activities do not include the burning of waste.

### Loss of Containment

Loss of containment could lead to spillage and leakage of potentially contaminating liquids. Table 4-3 below includes the location and storage arrangement of all potentially contaminating liquids on site.

Table 4‑1   
Potentially Contaminating Liquids: Storage Arrangements

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Chemical/Additive** | Storage Location | Storage Arrangement | Approx. use in 1 week (m3) | Maximum Amount Stored at any one Time (m3) | Maximum Amount Used Over a Year (m3) (estimated) |
| Leachate | MSP | Prefabricated, epoxy coated, multi-compartment tank within a separate bund. | 1,862 | 35 | 97,090 |
| Antifoam | MSP | 25 litre containers inside a bunded dosing pump enclosure. | 0.005 | 0.025 | 0.3 |
| Hydrogen Peroxide | MSP | *If required* | *If required* | *If required* | *If required* |

To prevent loss of containment and minimise the risk and impact of releases the following measures will be implemented:

* Storage vessels: storage tanks/vessels will be constructed to the appropriate British Standard (where applicable) or to an appropriate standard in line with industry practice;
* Inspection: tanks/vessels will be inspected visually on a regular basis by the Site staff to ensure the continued integrity of the tanks/vessels, and identify the requirement for any remedial action;
* Spill kits: materials suitable for absorbing and containing minor spillages will be maintained on site. Spill kit levels will be subject to regular inspection.
* Monitoring techniques: Site staff will undertake regular monitoring for evidence of spillage and leakage; and
* Where possible pipework will be placed above ground.

In the event of any potentially polluting leak or spillage occurring on Site, the following action will be taken:

* Minor spillages will be cleaned up immediately, using sand or proprietary absorbent. The resultant materials will be placed into containers and will then be removed from Site and disposed of at a suitably permitted facility. The incident will be logged in the online site diary/application.
* Any dry wastes spilled on Site will be kept dry prior to being collected and transported to the appropriate area of the Site.
* In the event of a major spillage, which is causing or is likely to cause polluting emissions to the environment, immediate action will be taken to contain the spillage and prevent liquid from entering surface water or drains. The spillage will be cleared immediately and placed in containers for off Site disposal, and the EA will be informed.

The leachate treatment system will be purpose built. All tanks associated with the plant will be sited within bunding, as illustrated on Drawing VSL.BF.001.4.1.GA. Bunding (with a capacity at least 110% of the largest vessel or 25% of the total tankage volume, whichever is the greater) will be provided to contain a spillage and prevent the release of waste from the Site.

Should damage occur that (could) affect the integrity of the tank/vessel(s), then the plant will be shut down whilst immediate repairs are made. Whilst the leachate treatment system is non-operational, leachate will discharge to sewer at the existing three locations (COL, COLA and Monks Well) under gravity. There is therefore an operational requirement for SUEZ to retain all existing sewer discharge connection points. Leachate at all discharge points will continue to be monitored in accordance with the Leachate Management Plan and EP.

### Plant Failure

Under normal operating conditions treated leachate will be discharged to sewer at a single location within the Monks Well Sump (MH1) on Site under an existing permitted point source emission to sewer.

If there is a failure within the MSP, which prevents the treatment of leachate, the system will be safely shut down and operations will cease. The relevant maintenance team will be deployed. Whilst the leachate treatment system is non-operational, leachate will discharge to sewer at the existing three locations (COL, COLA and Monks Well) under gravity. There is therefore an operational requirement for SUEZ to retain all existing sewer discharge connection points. Leachate at all discharge points will continue to be monitored in accordance with the Leachate Management Plan and EP.

The leachate treatment system will undergo a programme of routine servicing and maintenance in line with manufacturer’s recommendations as well as forming part of the regular on-site inspection regime. All maintenance issues will be dealt with immediately to prevent downtime and the accumulation of leachate.

### Security and Vandalism

The Site will have a number of security measures in place to limit the likelihood of vandalism including:

* Mixture of fencing and hedgerow around the perimeter of the landfill site which the leachate treatment facility is contained within. In addition, the MSP will be surrounded by its own security fencing;
* Security gating which is locked outside of operational hours;
* Inspection and maintenance procedures; and
* Visitors will be by appointment only and logged via an online diary on arrival at the site by the site manager or technically competent person. All visitors are accompanied by a member of staff for the duration of their visit..

In the event of a breach of security at the Site, the cause will be investigated, and appropriate mitigation measures implemented. This will be recorded in the online site diary/application. Records maintained will include, breaches of security, investigations and actions taken.

### Flooding

The Flood Map for Planning[[1]](#footnote-1) identifies the majority of the wider permitted site as lying within a Flood Zone 1, however the proposed location for the MSP is situated within a Flood Zone 3.

Permitted waste types are liquid in nature and treated within a sealed collection and treatment system.

The MSP will be designed to be fit for purpose given its’ location within a Flood Zone 3. It will be surrounded by bunding to ensure flood resilience, as illustrated on Drawing VSL.BF.001.4.1.GA.

# Emissions Control

This section of the report details the emissions that will result from the operation of the MSP.

## Point Source Emissions to Air

There will be no point source emissions to air.

## Point Source Emissions to Groundwater

There will be no point source emissions to groundwater.

## Point Source Emission to Surface Water

There will be no point source emissions to surface water.

## Point Source Emissions to Sewer

The existing site has permitted point source emissions to sewer, and there will be no change as a result of the discharge of effluent from the MSP other than the methane concentration.

Treated leachate will be discharged to the Frome Valley Relief Sewer under an existing trade effluent discharge consent from Wessex Water. Under normal operating conditions when the MSP is operational the treated effluent from the MSP will discharge at a single location within the Monks Well sump (MH1), shown in Drawing 002. Under abnormal conditions such as a power cut, it would not be possible to pump leachate from the collection sumps (COL, and COLA) to the MSP. The system will be safely shut down, and the relevant maintenance team will be deployed. Whilst the leachate treatment system is non-operational, leachate will discharge to sewer at the existing three locations (COL, COLA, and Monks Well) under gravity. There is therefore an operational requirement for SUEZ to retain all existing sewer discharge connection points. Leachate at all discharge points will continue to be monitored in accordance with the Leachate Management Plan and EP.

SUEZ will continue to undertake monitoring of the discharge as per the requirements of the EP and trade effluent discharge consent issued by Wessex Water.

## Point Source Emissions to Land

There will be no direct deposit of untreated waste to land.

## Fugitive Emissions to Air

The risk of airborne emissions of dust is extremely low because the MSP treatment process is inherently wet which will eliminate the primary sources of dust. It is a closed and contained process, therefore no dust will be generated.

Trace emissions of landfill gas emissions from the MSP will disperse to atmosphere and will not have the potential to impact receptors. The MSP will operate in accordance with the Odour Management Plan (Ref: 410.065456.00001/OMP), as described in Section 5.8 below.

The Site Manager will continue to be responsible for implementing risk management measures in conjunction with the IMS.

## Fugitive Emissions to Surface Water

The MSP will be operated to prevent fugitive emissions to surface water and groundwater.

The MSP is a closed and contained process, therefore no run off will be generated. The MSP will be monitored for fugitive emissions to surface water including regular visual inspections by site operatives.

In the event of a significant release of fugitive emissions to surface water, SUEZ will record the occurrence and take remedial action in accordance with the IMS and associated procedures.

### Containment Bunding

All tanks on site will benefit from a bund with the capacity to store 110% of the tank or container capacity. Bunds will:

* Be impermeable and resistant to the stored materials;
* Have no outlet;
* Be designed to catch leaks from tanks or fittings;
* Have a capacity greater than 110% of the largest tank or 25% of the total tankage (whichever is greater);
* Have pipework routed within bunded areas with no penetration of contained surface;
* Have tanker connection points within the bund; and
* Be subject to regular visual inspection.

The Site Manager will continue to be responsible for implementing risk management measures in conjunction with the IMS.

## Odour

The MSP process is a closed and contained process therefore odour nuisance is not expected.

The site will operate in accordance with the Odour Management Plan (Ref: 410.065456.00001/OMP). The following site management methods will be adhered to:

* The Site Supervisor/technically competent person will record daily weather conditions in the online site diary/application. This will allow the location where boundary monitoring should be focussed to be determined and predictions to be made as to where odour impacts could occur;
* Odour monitoring will be undertaken regularly by site staff; and
* If any problems associated with odour are identified, appropriate remedial and corrective action will be implemented as soon as practicable.

If significant odours are detected, investigations will be undertaken to determine the cause and appropriate remedial action will be taken.

The Site Manager will continue to be responsible for implementing risk management measures in conjunction the IMS and OMP.

## Noise and Vibration

The MSP will have minimal mechanical equipment in operation, and will be contained within a sealed container. Therefore, there will be no significant noise impact on surrounding human receptors.

The Site Manager will continue to be responsible for ensuring noise is minimised and site personnel are trained on the need to minimise noise.

The Site Manager will be responsible for implement risk management measures in conjunction with the IMS.

## Pest Control

The MSP process will not be susceptible to pests due to the closed and contained nature of the process.

In the unlikely event that birds, vermin or pests are identified on site, a specialist pest control contractor will be employed to undertake measures to remove the animals from the site.

The Site Manager will continue to be responsible for implementing risk management measures in conjunction with the IMS.

## Litter

Only leachate from the existing landfill will be transferred to the MSP. No externally imported waste will be treated. Therefore, there is no potential for litter to be produced as a result of the operation of the MSP.

Bins are provided in the MSP control room for the use of site visitors and personnel, a ‘euro-bin’ will be provided for the regular removal of plant derived ‘household type’ waste.

The Site Manager will continue to be responsible for implementing risk management measures in conjunction with the IMS.

## Mud

There is no potential for mud to be produced as a result of the operation of the MSP because only leachate from the existing landfill will be treated. There will be no external importation of waste.

The Site Manager will continue to be responsible for implementing risk management measures in conjunction with the IMS.

The plant is located on a hard-standing and located close to the site entrance.

# Best Available Techniques Assessment

This BAT assessment describes the proposed design, operation, and management of the MSP which falls within Schedule 1 of the EP Regulations, identifying how it will meet the requirements and standards set out in the regulatory and industry sector guidance. Guidance reviewed for the compilation of this document includes but is not limited to:

* European Commission Joint Research Centre – Best Available Techniques Reference document on Waste Treatment (August 2018) available at <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018D1147&from=EN>;
* Environment Agency - Sector Guidance Note S5.06: recovery and disposal of hazardous and non-hazardous waste (May 2013) available at <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/298118/LIT_8199_dd704c.pdf>;
* Environment Agency - Develop a management system: environmental permits (November 2020) available at <https://www.gov.uk/guidance/develop-a-management-system-environmental-permits>; and
* Environment Agency - Control and monitor emissions for your environmental permit (October 2020) available at <https://www.gov.uk/guidance/control-and-monitor-emissions-for-your-environmental-permit>.

The BAT Conclusions Assessment, produced in line with the BREF for waste treatment, is included as Appendix B.

The excel spreadsheet assesses whether or not each of the BAT points is applicable to the MSP and where it does, explains the measures in place to meet these requirements.

The following table below provides an overview of the process in line with the additional guidance detailed above. The following BAT assessment should be read in conjunction with the Environmental Risk Assessment included as Section 3 of this EP variation application, and Sector Guidance Note, IPPC S5.03 Guidance for the Treatment of Landfill Leachate.

Table 6‑1 An Overview of Process Information relating to the MSP

|  |  |
| --- | --- |
| BAT | BAT Assessment |
| **Management** | SUEZ recognises that an effective system of management is a key technique for ensuring that all appropriate pollution, prevention and control techniques are delivered reliably and on an integrated basis.  SUEZ is externally certified to the following standards, registered through the British Standards Institute (BSI):   * ISO 14001 (Environmental Management); * ISO 9001 (Quality Management); * ISO 45001 (Occupational Health and Safety Management).   The above standards form part of the wider IMS that governs operations at the site.  Consequently, operational procedures for the management of the facility ensures that all appropriate pollution prevention and control techniques are delivered reliably and on an integrated basis.  The IMS assists in maintaining compliance with regulatory requirements and managing environmental impacts. |
| **In Process Controls** – including treatment and storage | **Waste Acceptance –** only leachate produced at the existing Berwick Farm Landfill will be treated at the MSP, leachate treatment system. No externally imported waste will be treated.  **Treatment –** the treatment process will be controlled by an automated SCADA system to ensure safe conditions within the MSP. The SCADA system will be installed within a secure control room. The system is designed and intended to be passive, with limited mechanical intervention.  **Storage** - arrangements are detailed within Table 4-1 of this report.  **Maintenance** – the plant has been specifically designed to be fit for purpose. The design process included consideration of process hazards and a hazard assessment of possible chemical reactions prevention and protective measures.  All infrastructure used on site including vessels, pipes, tanks and connections will be resistant to materials used and stored on the site. Furthermore, they will not be used in a manner other than for which they are designed, nor will they be used for a duration exceeding the specified design life. They will benefit from regular inspection of integrity which will be undertaken by a technically competent member of staff. Labelling of process pipework will be undertaken.  All equipment used on site will be in good repair. The site and all of its components will benefit from ongoing regular inspections to ensure that all equipment is in good working order. Any defects will be repaired within timescales defined by the risk involved. If this is not possible suitable measures are taken to prevent any unauthorised access to the site and permanent repairs are affected as soon as practicable. |
| **Emissions** – fugitive emissions to air, groundwater, surface water etc.  Point source emission to sewer  (there will be no point source emissions to surface water, air or groundwater) | There will continue to be one point source emission to sewer, as a result of the discharge of effluent from the MSP. There is no change proposed to the existing permitted point source emission to sewer other than the methane concentration.  Treated leachate will be discharged under an existing trade effluent discharge consent from Wessex Water. Under normal operating conditions when the MSP is operational the treated effluent from the MSP will discharge at a single location within the Monks Well sump, shown in Drawing 002. Under abnormal conditions such as a power cut, it would not be possible to pump leachate from the collection sumps (COL, and COLA) to the MSP. The system will be safely shut down, and the relevant maintenance team will be deployed. Whilst the leachate treatment system is non-operational, leachate will discharge to sewer at the existing three locations (COL, COLA, and Monks Well) under gravity. There is therefore an operational requirement for SUEZ to retain all existing sewer discharge connection points. Leachate at all discharge points will continue to be monitored in accordance with the Leachate Management Plan and EP.  SUEZ propose to continue to undertake monitoring of the discharge in accordance with the requirements of the EP and trade effluent discharge consent issued by Wessex Water.  **External Spillages –** the tanks/vessels will be fully lined, and control measures will prevent overtopping of the vessels. All new tanks will be bunded with a capacity of at least 110% of the largest vessel or 25% of the total tankage volume (whichever is the greater) to contain a spillage and prevent the release of waste from the Site. The MSP area will benefit from dedicated routine inspections as well as monitoring from the site personnel working externally. Any spillages that may occur during the working day will be identified quickly and cleaned up immediately using a spill kit.  **Internal Spillages** – the MSP will benefit from impermeable surfacing. Regular inspections will take place and any spillages that may occur will be identified quickly and cleaned up immediately using a spill kit.  **Pipework Integrity** - pipework will be regularly inspected for integrity. Any defects identified as part of the inspection will be repaired immediately with a temporary solution and afforded a permanent solution as soon as possible.  **Plant and Equipment Failure** - the plant and equipment on Site will be operated safely and in accordance with the manufacturer’s manual. Furthermore, they will benefit from a scheme of preventative maintenance. In the event of plant and equipment failure, all MSP activities will cease. Repairs will be made immediately with a temporary solution and afforded a permanent solution as soon as possible. |
| **Noise and Vibration** | The only source of noise will be the blowers and discharge pumps, all of which will be housed in a sealed shipping container. Auditory inspections will be carried out in response to any complaints and routinely to ensure all equipment is in good working order and not generating excessive noise. |
| **Odour** | The MSP will be operated in accordance with the Odour Management Plan, included as Section 4 of this EP variation application. The mitigation and management methods included within this plan will complement the operation of the MSP.  The MSP is a closed and contained process.  The Odour Management Plan describes the periodic monitoring of odours. If significant odours are detected, investigations will be undertaken to determine the cause and appropriate remedial action will be taken. |
| **Raw Materials Selection** | SUEZ will maintain a list of all raw materials and their properties, to prevent incompatible materials being stored in proximity to each other and interacting. All raw materials will be reviewed regularly by a technically competent manager and when possible will be replaced with more suitable and environmentally friendly materials. If needed, SUEZ will implement quality assurance procedures to control the impurity content of raw materials.  The raw materials that will be stored at the MSP include:   * Antifoam; * Leachate; * Hydrogen peroxide (if required).   Wherever possible, raw materials will be selected that minimise environmental impact. Consideration will be given to such factors as degradability, bio-accumulation potential and toxicity.  Materials storage and management will be governed by SUEZ’s IMS. An inventory of materials held and used will be maintained by the Site Manager. SUEZ will periodically review the use and sourcing of raw materials and where cost effective environmental benefits can be obtained through the use of alternatives this is implemented. Quality assurance systems in place maintain materials quality requirements and stock levels will be minimised as far as practicable, consistent with operational needs. |
| **Waste Minimisation Audit** | Given the nature of the process, the opportunity for waste minimisation is limited. However, minimisation of waste will be considered as and when appropriate.  Measures will be in place for the prevention and reduction of waste and will include:   * Plant and equipment will be maintained on a routine basis to prevent breakdowns and the loss of treated leachate to the environment.   Use of raw materials and opportunities for substitution or minimisation will be considered as part of SUEZ’s IMS. |
| **Water** | In accordance with the site’s operational procedures, the site will be operated so as to minimise the generation of wastewater and prevent the release of contaminated runoff or wastewater off site.  There will be no wastewater streams generated by the treatment process to be undertaken at the facility. |
| **Waste Recovery and Disposal** | To encourage reuse, any containers used on site, will be segregated, labelled, covered and maintained in a satisfactory condition. Storage areas will be protected from vandalism by Site security arrangements. Storage areas will be designated and marked as appropriate.  Any waste produced in the process will be transferred off site to a suitably licensed facility for further recovery or disposal. |
| **Reuse of Packaging** | When in good condition, packaging such as IBCs will be reused, providing it is sufficiently clean and the previous substance contained within it is compatible with the proposed substance. If necessary, packaging is sent for appropriate treatment prior to reuse for example reconditioning or cleaning. |
| **Energy Requirements and Efficiency** | Energy use will be determined in line with the IMS (SUEZ Environmental Aspects Register) and reviewed as part of SUEZ’s energy procedure at least annually as one of the significant environmental aspects of operation. The purpose of the procedure is to reduce energy usage within SUEZ.  SUEZ is currently participating in the Streamlined Energy and Carbon Reporting (SECR) Scheme. An SECR report is prepared as required.  Energy specification and consumption of each unit operation for the treatment equipment will be described within site specific procedures.  Periodic energy audits and training for key staff will take place. Areas where new technology provides an opportunity for energy reduction will be identified and incorporated into the IMS environmental management plan. |
| **Accidents** | SUEZ will implement their comprehensive suite of procedures to prevent accidents occurring and mitigate their impacts on the environment, as detailed in Section 4 above.  These procedures are contained within the IMS to ensure that all Site operatives receive sufficient training in the handling of emissions from incidents or accidents.  The wider landfill also benefits from a site specific Accident Management Plan. |

# Information

All relevant notifications and submissions to the EA regarding the site will be made in writing and quote the EP reference number and the name of the EP holder.

Records will be maintained for at least six years, however in the case of off-site environmental effects, and matters which affect the condition of land and groundwater, the records are to be kept until EP surrender. Duty of Care records will be kept for a minimum of two years.

## Reporting and Notifications

### Changes in Technically Competent Persons

The EA will be informed in writing of any changes in the technically competent management of the site and the name of any incoming person, together with evidence that such person has the required technical competence.

### Waste Types and Quantities

A summary report of waste types and quantities accepted at the site for each quarter, will be submitted to the EA within one month of the end of the quarter unless otherwise required by the EP conditions.

### Relevant Convictions

The EA will be notified of the following events:

* SUEZ being convicted of any relevant offence; and
* Any appeal against a conviction for a relevant offence and the results of such an appeal.

### Notification of Change of Operator’s or Holder’s Details

The EA will be notified of the following:

* Any change to the operator’s trading name, registered name or registered office address; and
* Any steps taken with a view to the company going to administration, entering into a company voluntary arrangement or being wound up.

### Adverse Effects

The EA must be notified without delay following the detection of the following:

* Any malfunction, breakdown or failure of equipment or techniques;
* Any accident;
* Fugitive emissions which have caused, is causing or may cause significant pollution; and
* Any significant adverse environmental and health effect.

1. IMS Summary
2. BAT Conclusions Assessment

1. Gov.uk Flood Map for Planning, available at [https://flood-map-for-planning.service.gov.uk/,](https://flood-map-for-planning.service.gov.uk/,%20) accessed in April 2024 [↑](#footnote-ref-1)