

LANDCARE (MANCHESTER) LTD

**MANAGEMENT PLAN
FOR THE
STORMY WEST LANDFILL SITE**

OCTOBER 2013

LML/SW/SMP/001

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MANAGEMENT PLAN FOR STORMY WEST LANDFILL SITE

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INTRODUCTION

This management plan has been prepared to ensure that the operation of this site/facility is controlled, monitored and maintained in compliance with regulatory requirements.

The Stormy West landfill site was operated from 1985 until its closure in 1996, after being landfilled with approximately one million cubic metres of household, industrial and commercial wastes. In addition some hazardous waste i.e. Asbestos was also deposited during this time.

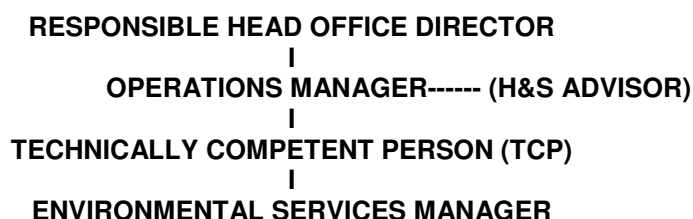
The site was originally a disused limestone quarry and was filled in compliance with a licence issued under the Control of Pollution Act 1974, Waste Management Licence (WML) and now referred to as an Environmental Permit.

A flare system was introduced in 1991 to control the landfill gas (LFG) emissions produced from the biodegradation of the waste.

In 1994 a LFG utilisation system was operated from the site which reverted back to a flaring system in 1999 in order to control the potential for LFG migration.

The site has now been fully restored via the installation of a fully quality assured low permeable cap to reduce the ingress of water and thus reduce the potential for any adverse environmental impact.

1.0 ORGANISATIONAL STRUCTURE



CONTACT TELEPHONE NUMBERS & PERSONNEL

Position	Name	Telephone No. (ext)
HEAD OFFICE DIRECTOR	S TOWERS	0141 2427900
OPERATIONS MANAGER	J WATHEN	07801 366006
TCP/HEALTH & SAFETY ADVISOR	P. REES (PLR SERVICES)	07703 470326
ENV SERVICES MANAGER	T FLINT	07931 563 822

2.0 EMPLOYEE RESPONSIBILITIES

The typical responsibilities and accountability of site personnel are as follows:

2.1 HEAD OFFICE DIRECTOR

2.1.1 Reporting to the Board

2.1.2 Responsibilities shall include the following:

- To ensure that a director of the Company is appointed as, and undertakes the duties, of the 'Nominated Director'.

- To ensure the Group Main Board are aware of the existence of the Management Plan and its compliance.

2.2 OPERATIONS MANAGER

2.2.1 Reporting to the Nominated Director

2.3.2 Responsibilities shall include the following:

- Control of all site staff and operatives to ensure the site complies with the Environmental Permit/Waste Management Licence and Planning Consent.

2.3 TECHNICALLY COMPETENT PERSON (TCP)

2.3.1 Reporting to the Nominated Director and/or nominated operations management

2.3.2 Responsibilities shall include the following:

- a) Ensuring the site complies with the requirements of: -
 - i) Environmental Permit (Waste Management Licence).
 - ii) All relevant legislation (inc. EPA, Duty of Care, H & S).
 - v) The Working Plan and/or Gas Management Plan.
 - vi) The Environmental Plan.
 - vii) Codes of Practice.
 - viii) Waste Management Papers/Natural Resources Wales (NRW) guidance documents.
- b) Weekly monitoring of landfill gas as per the environmental plan (see later section).
- c) Weekly monitoring of the site conditions as per the working plan and/or legislative requirements and as indicated upon the record form (see appendix).
- d) To be on call in the event of any adverse environmental impact such as gas flare failure.

All monitoring performed as per Environmental Permit/Waste Management Licence.

2.4 ENVIRONMENTAL SERVICES MANAGER

2.5.1 Reporting to the Operations Manager and/or nominated line management.

2.5.2 Responsibilities shall include the following:-

- a) Monitoring in and around the site at prescribed intervals for: -
 - i) Surface and Ground water levels and quality.
 - ii) Leachate volumes/levels and quality.

2.7 OTHER RESPONSIBLE PERSONS

2.7.1 These are indicated upon the contacts listing within the appendices and are those approved persons/contractors/suppliers necessary to perform specific tasks in the absence of nominated personnel.

3.0 SITE OBJECTIVES

3.1 LANDFILL GAS CONTROL

To provide a landfill gas flaring system to control the potential for any LFG migration which may have an adverse effect on sensitive targets within the locality.

3.2 AFTERCARE CONTROL

To maintain the site stability and overall landform design, as not to cause any adverse effect upon the environment e.g., slippage, differential settlement leading to ponded areas, etc.

3.3 ENVIRONMENTAL MONITORING

To provide a management system for the ongoing compliance with the Environmental Permit as per the sections of this plan.

4.0 FACILITIES, PLANT AND EQUIPMENT

4.1 SITE FACILITIES

The site offers the following facilities:-

- 1) Container storage area
- 2) Electricity distribution system/meter

4.2 LANDFILL GAS FLARES

- 1) A 500 cubic metre per hour high temperature flare unit
(see appendix for type)

4.3 EQUIPMENT

- 1) Submersible pump located within the condensate chamber at the manifold area
- 2) Water depth meter
- 3) Landfill gas monitoring instrument
- 4) Landfill gas collection system

5.0 APPROVED SUB CONTRACTORS/SUPPLIERS

The names and contact numbers of the above who have been involved with this site are included upon a list contained within the appendices to this document.

These include:

- ESM cover in order to monitor site monitoring requirements.
- TCP cover in order to comply with EP (WML) requirements.
- LFG engineer in order to maintain and be available for equipment failure.

6.0 SITE OPERATION

6.1 LANDFILL GAS MANAGEMENT

The primary gas flare system located at this site is routinely used and operates all year round.

In the event of failure then the site TCP will be called out via the on-site telemetry system and/or NRW.

In general lack of operation may be due to the following routine reasons but this is not an exhaustive list: -

- Electrical failure e.g. temporary power cut
- Blockage within the gas collection pipework

- Low pressure shut down possibly due to the above
- Poor gas supply/concentration e.g. flow
- UV flame detector signal failure on ignition side
- Igniter problem
- Condensate pump problem

Other non-routine failure may require a competent engineer to address problems encountered such as the replacement of failed/worn out parts etc.

In the event of total failure of the flare then a back-up unit may be employed to actively flare/burn and/or temporarily vent the gas to atmosphere (however this can cause odour problems due to gaseous emissions).

6.2 AFTERCARE

The site has been restored in compliance with the planning consent which has now expired. However there is an aftercare requirement to comply with the Environmental Permit/Waste Management Licence and thus a periodic check of the site conditions is recorded.

Areas deemed to require attention e.g. vegetation dieback, leachate breakouts etc will need to be reinstated where practical to do so in accordance with regulatory requirements i.e. the Environmental Permit/WML.

Thus aftercare of completed sites will include monitoring of gas, water, leachate and site conditions.

7.0 SITE MATERIALS

7.1 LANDFILL SITE ITEMS

- a) Cover type materials e.g. subsoil's, may be required to be imported where cap erosion is evident and in need of further reinstatement.

7.2 CONSUMABLE ITEMS

- a) Items such as gas pipework, well heads, couplings etc., are stored in the site secure unit or designated areas.

8.0 SAMPLING AND TESTING

8.1 LANDFILL GAS (LFG)

- 8.1.1 The LFG is routinely monitored on a weekly basis in compliance with the Working Plan/Gas Management Plan as agreed with NRW.
- 8.1.2 This involves the use of the LFG instrument where a test probe is inserted into the monitoring borehole/well (as per the plan included as an appendix) where a small sample of gas is extracted via the pump and analysed.
- 8.1.3 From the result, and in comparison to control limits (NRW Guidance and/or site specific trigger and control limits), it may be determined whether there is any potential for uncontrolled gas migration from the site.
- 8.1.4 Where this may be the case then the action plan may be instigated thus mitigating any adverse impact on the environment.

8.2 LIQUID SAMPLES

8.2.1 SURFACE WATER

At periodic intervals and in compliance with regulatory guidance, water samples are obtained from various points/sources within the site vicinity.

The samples are analysed at a nominated and approved test laboratory and as that agreed with NRW.

These results are reviewed and reported upon within the annual environmental report which is prepared by the TCP and submitted to the NRW.

The sampling and testing protocol is included as an appendix to this plan.

All results are submitted on a quarterly basis to NRW.

8.2.2 GROUNDWATER

At periodic intervals and in compliance with regulatory guidance water samples are removed from boreholes which are located within the site vicinity.

The samples are analysed at a nominated and approved test laboratory and as that agreed with NRW.

These results are reviewed and reported upon within the annual environmental report which is prepared and submitted to NRW.

The sampling and testing protocol is included as an appendix to this plan.

All results are submitted on a quarterly basis to NRW.

8.2.3 LEACHATE

At periodic intervals and in compliance with regulatory guidance a sample of leachate (gas well number B5) is extracted.

The sample is analysed at a nominated and approved test laboratory and as that agreed with the NRW.

These results are reviewed and reported upon within the annual environmental report which is prepared and submitted to NRW.

The sampling and testing protocol is included as an appendix to this plan.

All results are submitted on a quarterly basis to NRW

9.0 **COMPANY MANAGEMENT SYSTEM**

There are a number of manuals/documents which form the core of the Company Management System which are presented below: -

9.1 **MANAGEMENT PLAN (MP) (This document)**

The MP is the principal document which presents the support information outlining the operation of the site & inherent operations.

This references the various documents from which the site is able to comply with regulatory and company requirements.

The support information is contained within a number of appendices which cross reference the sections indicated within the index.

9.2 **HEALTH AND SAFETY MANUAL**

This document references various codes of practice and legislation to ensure Company activities are operated in compliance with due regard to H&S requirements.

9.3 **ENVIRONMENTAL PERMIT (EP)/WASTE MANAGEMENT LICENCE (WML))**

This is the document which has allowed systematic landfilling of the site over a number of years and continues to enforce the requirements for its ongoing aftercare and management. A Waste Disposal licence was in operation prior to it being superseded by the WML and further by the EP.

9.4 **GAS MANAGEMENT PLAN (GMP)**

This is the company prepared document, which outlines the method of enabling compliance with the EP/WML prepared by site management and agreed with NRW for the environmental operation of the site and inherent operations such as LFG management.

9.5 RECORDS

In compliance with the above documents there are a number of forms required to record various activities occurring on site.

Some of these are required to be retained by legislation such as inspections by the TCP/M and these record forms are included within the appendix.

APPENDICES

APPENDIX 1

CONTACTS LIST

Certificate of Technical Competence (COTC) and/or Technically Competent Person (TCP) will be provided by PLRSERVICES via the following arrangements -

- Philip Rees will be responsible for offering this support however where this is not possible e.g. holiday commitments, then this will be covered by John Wathen or Simon Towers of LML
1. NRW, Swansea office – 01792 325526
Environmental protection
 2. Severn Trent Laboratories, Coventry – 024 7642 1213
Supplier of sampling bottles and contract test laboratory
 3. Kenfig Pool nature reserve – 01656 743386
Surface water sampling point
 4. UNIFLARE – 01676 529 118 (fax -119), 07825 271891
LFG Flare engineer
 5. PLR SERVICES – 01792 775404 or 07703 470326
TCM & LFG support, H&SE Advice