

**LANDCARE (MANCHESTER) LIMITED
STORMY WEST LANDFILL SITE,
PYLE, BRIDGEND.**

**WORKING PLAN FOR A CLOSED LANDFILL SITE &
THE COLLECTION AND FLARING OF LANDFILL GAS.**

LML/SW/WP/001

October 2013

Document Type:		Working plan to accompany WML	
Document Issue:		Final	
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INTRODUCTION

- i. This working plan has been prepared for the management of a closed landfill site to include the collection and flaring of landfill gas generated from within the landfill site.
- ii. The establishment of this operation includes the operation of a high temperature flaring unit capable of adequately extracting and flaring the landfill gas.
Gas production arises as a consequence of the waste materials disposed of within the site over a period of 10-15 years.
- iii. During this period approximately one million tonnes of household, commercial and industrial wastes were landfilled in compliance with the waste disposal licence. This licence was originally issued by the then local authority, Ogwr Borough Council, who until the latter years of the site operation were the waste disposal regulators.
The Environment Agency (EA) subsequently became the regulation authority and will continue to monitor the site under a Waste Management Licence (WML) until such time as this is formally surrendered.
- iv. Following the cessation of waste disposal activities in 1996 the site was restored and the conditions of the planning permission complied with.
The remaining activities of LFG management and environmental monitoring continue to be performed in compliance with existing permissions.

1. GENERAL CONSIDERATIONS

1.1 Specified Land

The licensed area is shown on the plan attached as an appendix to this document.

1.2 Specified waste management operations

There are now no specified waste management operations performed at this location although there remains a WML with the only remaining activity being that of the collection and flaring of landfill gas.

1.3 Hours of operation

For operational reasons the management of the landfill gas is maintained on a 24 hour, 7day per week basis.

1.4 Staffing and supervision

Although there are no staff present upon the site there remains a 24 hour call-out operation which is covered by the Level 4 Technically Competent Person or equivalent in compliance with legislation and/or EA guidance.

This person will be responsible for the efficient operation of the gas management system to include:

- Weekly maintenance,
- Weekly monitoring,
- Arrangements for breakdown/servicing,
- Record keeping of overall site conditions by way of the site diary/record,
- Notifying the EA as required under the conditions of the WML.

Amendments to the working plan will be notified in writing to the Agency as soon as practicable but at least within seven days.

Copies of the WML, WP and support documents will be available on site.

2. SITE ENGINEERING

2.1 Engineering surveys

These are to be performed on an annual basis and/or as agreed with the EA in order to assess settlement of the surface of the landfill.

These will be produced by a competent surveyor and at a scale of 1:500 showing contour intervals of one metre.

2.2 Engineering works

Any significant engineering works required to comply with the conditions of the WML will be agreed with the EA prior to work being undertaken.

As the site is in closure e.g. restored and no longer accepting wastes then formal ongoing activities will be minimal.

However where problems are identified requiring remedial works then this will be assessed and a programme of work submitted to the EA for approval.

Such works will then be performed in conjunction with Construction Quality Assurance Plans and method statements prepared and approval sought from the regulators prior to work commencing.

2.3 Leachate management

As there is no formal engineered leachate management system located at this site then there is no maintenance requirement.

The leachate chamber present may be used to obtain a sample where required although the preferred and preferred and normally used location is that of a gas monitoring point as indicated upon the site environmental plan i.e. B5 (see appendices).

2.4 Surface water management

As the site has been fully restored then any surface water generated during periods of precipitation is managed via the installed engineered site collection ditches and stone grips.

These direct and allow water to enter soak-aways present naturally within the licensed areas.

2.5 **Landfill gas management**

2.5.1 The landfill gas generated from within the body of the site is managed via:

- The installed active gas extraction wells,
- The collection network of pipework,
- Transfer to a condensate knock-out/manifold assembly, and
- Flared via a high temperature flaring unit.

The system is checked on a weekly basis and any remedial works organised ASAP and in conjunction with the requirements of the WML.

2.5.2 There are a number of gas monitoring boreholes located outside of the body of the landfill which allow routine assessment of any gas migration. These are checked on a weekly basis in conjunction with the environmental plan (Ref. A1).

If elevated results are detected then this is addressed by following the method included within section 5 of this working plan and supporting documents (see appendices).

2.6 **Restoration**

This has been completed in compliance with the conditions of the original planning permission. The surface of the site is inspected on a weekly basis and in the event of any remedial works being required then this will be agreed with the NRW in conjunction with engineering requirements.

3. SITE INFRASTRUCTURE

The general site layout and infrastructure is indicated upon the drawings and plans included within the appendices.

3.1 Site identity board

An identity board of durable material and finish will be prominently displayed at or near the entrance to the facility and the condition/clarity will be checked weekly.

This will display the following information:

- Site name and address
- Licence holder name and Operator name
- Licence reference number
- Emergency contacts and telephone numbers
- Environment Agency local and national numbers
- To indicate site closure

3.2 Site security

Security measures in place are: -

- Two strands of barbed wire above a chain link type fencing of a total height of 2.4 metres provided along the site boundaries.
- Site access via 2.4 metre high gates along the site entrance which will be securely locked when the site is unattended.

The security of both fencing and gates will be included upon the weekly site diary/inspection form. Any damage will be held secure by the end of the working day and any repair/maintenance will be completed within seven working days of notification.

3.3 Gas management system

This is visually checked on a routine/weekly basis to ensure correct operation and additionally in response to any adverse environmental monitoring data e.g. migration, whereupon the flare pumping system may be adjusted for more or less extraction to be achieved.

4. SITE OPERATIONS

4.1 Control of mud and debris

Due to the site now being in closure the potential for mud and debris leaving site is minimal.

However where engineering and/or maintenance activities are required then vigilance will be exercised. Any remedial measures will take the form of manual removal of any mud/debris deposited upon the highway and/or use of road cleaning and/or brushing equipment depending upon the nature of the debris.

4.2 Potentially polluting leaks and spillages

Where the use of site plant and/or equipment is required this will be regularly maintained in line with the suppliers/manufacturers specification/service schedule and thus the potential for pollution will be minimised.

Although there are no liquids held on site in the event of leaks absorbent materials will be used for containment and then removed from site.

4.3 Fires on site

In the unlikely event of a fire outbreak the emergency plan will be implemented which will comprise summoning the emergency services (as there is no effective fire fighting equipment held on site).

5. POLLUTION CONTROL, MONITORING AND REPORTING

5.1 Quality Assurance

The method of obtaining representative samples and their locations is outlined within the site environmental plan (see appendices).

This includes the method of sample collection, sample preparation and submission to a UKAS accredited test laboratory.

5.2 Monitoring and sampling programmes

These are included within the site environmental plan which indicates the number and location of all environmental monitoring points.

The analysis is based upon the requirements outlined within Waste Management Papers guidance and test schedules.

The procedures used to obtain samples etc and any action required in response to adverse information i.e. monitoring action plans, is addressed within them (see appendices).

5.3 Landfill gas monitoring

5.3.1 Landfill gas risk assessment

This has been presented as a separately prepared document which may be referred to as the Gas Management Plan (Ref. B1) which indicates the potential hazards, the likely pathway and the targets/recipients in the event of uncontrolled emissions.

5.3.2 Engineered gas monitoring

a. System

This is addressed via the following:

- Location plan of all gas wells,
- Location plan of all monitoring points,
- Sampling points on wellheads and monitoring points,
- Weekly check of condition & access,
- Capped to reduce potential for entry of foreign matter and to improve security.

Where remedial work is required in response to adverse information then this will be performed by competent personnel in conjunction with a CQAP to be previously agreed with NRW and where appropriate based on technical/environmental considerations.

b. Active Gas extraction wells

These are located within the waste mass as indicated upon the site plans (see appendices) and connected via collection pipework to a knock-out manifold prior to entry to the gas flare system.

These will be monitored on a quarterly basis whereupon the wells will be balanced relative to the rest of the gas field in order to achieve optimum gas extraction and supply to the flare.

The following will be recorded:

- Date/time of record,
- Barometric pressure and weather conditions,
- Competent person,
- The levels of flammable gas and oxygen at each monitoring point,
- The suction pressure at each monitoring point.

Where appropriate the suction pressure from each branch of collection pipework will also be measured at the manifold assembly in order to balance the gas field

c. Monitoring boreholes

These are located external to the waste mass as indicated upon the site plans.

These will be monitored on a weekly basis and the following recorded:

- Date/time of record,
- Barometric pressure and weather conditions,
- Competent person,
- Water depth level,
- The levels of flammable gas, carbon dioxide and oxygen at each monitoring point.

Where adverse data is observed the action plan (Ref. C1) will be followed in order to investigate, mitigate and remediate in compliance with the WML.

This will include the following:

- Flammable gas in excess of 1%,
- Carbon dioxide exceeding the average background level by 1.5%.

d. Gas monitoring equipment

The use of this equipment will be performed in conjunction with the environmental plan taking due account of:

- Instrument calibration and test versus national standards (gases),
- Flow instrumentation,
- Pressure measurement instrumentation.

5.4 Surface water monitoring, sampling and testing

The monitoring locations are off site and are indicated upon the site plans. These will be monitored on a six monthly basis and the following recorded:

- Date/time of record,
- Barometric pressure and weather conditions,
- Competent person,
- Water temperature,
- Visual appearance.

The samples will be obtained in conjunction with waste management papers and/or the environmental plan and submitted to a UKAS accredited laboratory for analysis.

Records of monitoring and sampling with an interpretation of the results compared to background will be submitted to NRW on an annual basis.

Results that exceed background and/or historically collated average levels (trigger levels) will be reported to NRW as soon as practicable in conjunction with the action plan (Ref. C1).

This will address the potential reasons giving rise to elevated results and an indication of corrective/preventive action to remedy/control the reasons behind such results.

5.5 Groundwater monitoring, sampling and testing

The monitoring locations are indicated upon the site plans.

These will be monitored on a quarterly basis and the following recorded:

- Date/time of record,
- Barometric pressure and weather conditions,
- Competent person,
- Water temperature,
- Level compared to O.D,
- Visual appearance.

The samples will be obtained in conjunction with waste management papers and/or the environmental plan and submitted to a UKAS accredited laboratory for analysis.

Records of monitoring and sampling with an interpretation of the results compared to background will be submitted to NRW on an annual basis.

Results that exceed background and/or historically collated average levels (trigger levels) will be reported to NRW as soon as practicable in conjunction with the action plan (Ref. C1).

This will address the potential reasons giving rise to elevated results and an indication of corrective/preventive action to remedy/control the reasons behind such results.

5.6 Leachate monitoring, sampling and testing

The monitoring location, gas monitoring point B5, is indicated upon the site plans.

This will be monitored on a monthly basis and the following recorded:

- Date/time of record,
- Barometric pressure and weather conditions,
- Competent person,
- Temperature,
- Level compared to O.D,
- Visual appearance.

The sample will be obtained in conjunction with waste management papers and/or the environmental plan and submitted to a UKAS accredited laboratory for analysis.

Results that exceed background and/or historically collated average levels (trigger levels) will be reported to NRW as soon as practicable in conjunction with the action plan (Ref. C1).

This will address the potential reasons giving rise to elevated results and an indication of corrective/preventive action to remedy/control the reasons behind such results.

5.7 Engineered monitoring systems

All monitoring boreholes will be checked on a six monthly basis for total depth and submitted to NRW within the annual report.

Where it is determined that any have become unsuitable for monitoring requirements NRW will be informed and remedial action sought within 21 days and as agreed with NRW.

5.8 Monitoring records

Records of the following will be retained for all monitoring and sampling requirements of the environmental plan and action plans:

- Determinands,
- Sample specific data – date, time, point, location etc,
- Analytical results including specified limits,
- Regular review of action and trigger levels,
- Interpretation of results, monitoring information,
- Site settlement.

5.9 Environmental monitoring report

On an annual basis as at the 1st November, a report outlining the site monitoring data for the previous 12 months, to be submitted to NRW.

The report is to be made available within two months and is to be collated by a competent person to interpret the following and where appropriate make recommendations for:

- The effectiveness of the gas control system
- The quality of groundwater,
- The quality of surface water,
- Review of the site monitoring programmes,
- Any trends in the gas quality and quantity,
- Any trends in the groundwater and/or leachate quality.

6. AMENITY MANAGEMENT AND REPORTING

6.1 Control of odour

The only likely source of odour will be from a malfunction of the flare system thereby allowing the gas to be emitted to atmosphere.

Where adjustments to the system still allow malodours to be detected then the flare system will be subject to engineering attention within 2 days of failure or within 7 days for limited operation.

If third party complaints are received NRW will be informed as per the action plan.

A record of odour detection will be kept in the site diary/inspection form.

6.2 Control and monitoring of Noise

Under normal circumstances the only noise source will be the flaring equipment and given the isolated nature of the site location it is not thought noise will be an issue.

However where it is established that there an abnormal noise source/level then this will be investigated and remedial action taken ASAP including any monitoring as appropriate.

6.3 Control of Pests

On a monthly basis the operation of the site will be inspected in order to determine pest activity and a record of such observations will be recorded within the site diary/inspection form.

Remedial measures will be taken for the control of pests and where necessary by employing the services of a recognised pest control organisation.

The following visual monitoring for pests, vermin etc will be performed: -

- Evidence of droppings
- Evidence of damage to property/plant
- Evidence of ground disturbance e.g. nests
- Excessive infestation present.

7. SITE RECORDS

7.1 Security and availability of records

All records pertinent to the operation of the site will be securely stored and protected from adverse conditions.

All site records will be initially located either with the TCP, the head office and/or operations office in electronic and/or paper systems.

These are to include,

- Site diary/inspection forms
- Copy of Waste Management Licence
- Copy of Working Plan and support documents

Storage of such information will be controlled by management and will be available for inspection on request.

7.2 Site diary

A site diary will be kept on site with other inspection forms held with the TCP and a copy held at the head and/or the operations office which will be readily available for inspection on request.

The following information/events will be recorded within 24 hours or as agreed with NRW as appropriate:

- TCP on-site visits,
- Emergency information,
- Results of inspections,
- Site visits to record monitoring/sampling,
- Site visits by contractors etc,
- Weather conditions,
- Security issues,
- Complaints.

APPENDICES

- A. Location Plan
- B. Drawings/Plans
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APPENDIX A

Location Plan

APPENDIX B

Drawings/Plans

APPENDIX C

Site diary/inspection form