PARRY'S QUARRY LANDFILL ALLTAMI, FLINTSHIRE,

Environmental Permit Application

Odour Management Plan

Prepared for: Mold Investments Limited

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1.0 INTRODUCTION

This Odour Management Plan (OMP) has been prepared to support the Environmental Permit application for a landfill site and associated waste transfer station (WTS) at Parrys Quarry, Mold.

The landfill site and associated WTS will require an Environmental Permit (EP) to be issued by Natural Resources Wales (NRW) before it can operate. This OMP has been written in accordance with NRW guidance Note *H4 Odour Management How to comply with your environmental permit*[1] (hereafter referred to as 'H4 Odour Guidance'). The H4 Odour Guidance describes how the IPPC Directive includes odour in the definition of pollution and requires that *"[…] all the appropriate preventive measures are taken against pollution […]"*. This Directive has been transposed in the UK by the Environmental Permitting Regulations (EPR) and sites encompassed within these Regulations will have the following odour condition included within their permit:

> *Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in an approved odour management plan, to prevent or where that is not practicable to minimise the odour.*

Mold Investments Limited (Mold) as the Operator must therefore employ the appropriate measures necessary to prevent odour pollution or minimise it when prevention is not practicable. The measures that are appropriate will depend on the industry sector and the site-specific circumstances of the landfill site and associated WTS and will take costs and benefits into account.

1.1 OMP Objectives

As defined within the H4 Odour Guidance, the objectives of an OMP should be to:

- identify potentially significant odour sources at the facility and any foreseeable situations which may compromise the operator's ability to prevent and / or minimise odour releases from the proposed site activities;
- identify and employ appropriate methods, including monitoring and contingencies, to control and minimise odour pollution;
- identify and employ appropriate control measures and actions that the operator will take to minimise the impact in the event that odour incidents occur;
- prevent unacceptable odour pollution at all times;
- reduce the risk of odour releasing accidents or incidents by anticipating them ad planning accordingly; and
- provide a working document for on-site staff.

1.2 OMP Approach and Structure

The methodologies presented take full account of NRW's H4 Odour Guidance. According to these guidelines an OMP should contain the following elements:

- an assessment of the risks of odour problems, from normal and abnormal situations, for example of weather, temperature, or breakdowns, as well as accident scenarios;

[1] Natural Resources Wales, How to comply with your environmental permit. Additional guidance for H4 Odour Management. Version 2.0, October 2014.

- the appropriate controls (both physical and management) needed to manage those risks;
- suitable monitoring;
- actions, contingencies and responsibilities when problems arise;
- regular review of the effectiveness of odour control measures; and
- emission limits (*where appropriate*).

The OMP is also required to include clear statements to demonstrate that the operator understands and accepts its responsibilities. In particular, it should show:

- that the Operator, either directly or through its contractors or subcontractors, ensures that equipment on site is operated and maintained such that it is effective in the control of odour at all times;
- that the Operator is familiar with the characteristics of the processes and equipment on site and have identified the areas of risk of emissions from odour;
- how the Operator will reduce or cease operations if necessary to avoid serious odour pollution;
- how the Operator will engage with neighbours to minimise their concerns and complaints; and
- how the Operator will respond to complaints.

2.0 SOURCES, RELEASES AND IMPACTS

This section provides an inventory of potential odour sources, release points, pathways and receptors relevant to the landfill and associated WTS.

2.1 Description of Operations

The facility is a waste management facility, to receive and dispose of inert and non-hazardous waste. Only Cell 6 of the landfill will receive biodegradable waste (i.e. with an odour potential), with a disposal capacity of up to 320,000 tonnes per annum (tpa). Incoming waste streams will be mixture of commercial and industrial (C&I) wastes and other public sector contracts.

The WTS will receive and process up to 400,000tpa. Wastes would either be transferred to the landfill for disposal or transferred offsite for further recovery.

The site will operate between 07.00 – 19.00 Monday to Friday, and half days on Saturdays. All processing plant and storage of waste will be located within the enclosed WTS building.

2.2 Potential Odour Sources

The application of good working practices and process control is of fundamental importance in eliminating and minimising the quantities of odours formed on site and their subsequent release to atmosphere. This section provides an inventory of all potential odour sources under the full range of normal operating conditions.

The overall aim in the operation of the landfill and associated WTS is to apply Best Available Techniques (BAT) at all stages of the waste treatment processes undertaken on site. For this reason, the landfill and associated WTS is operated and managed in accordance with the accepted hierarchy of preferred controls, that is:

1. prevent the formation or emission of odorous compounds in the first place;
2. where this is not practicable, minimise the release of odour;
3. abate excessive emissions; then
4. dilute any residual odour by effective dispersion in the atmosphere.

There are four primary potential odour sources associated with the landfill site and WTS.

- wastes as received (i.e. vehicles);
- active waste disposal operations and the decomposition of freshly tipped wastes within Cell 6;
- landfill gas arising from the decomposition of wastes within Cell 6; and
- fugitive releases from the WTS building; and

The release of odour from vehicles using the public highway are typically outside the control of the Operator, although they can be given 'advice' where necessary. Waste will be received in covered / sheeted or otherwise contained vehicles. Notification will be given to the relevant party if particularly odorous wastes are received. On this basis, odour from vehicles using the public highway are outside the scope of this document.

2.3 Received Wastes

As described above, the landfill site and WTS is a waste management facility which will treat up to 320,000tpa (landfill) and 400,000toa (WTS) of non-hazardous wastes.

Waste transfer is an inherently odorous process; however with the correct controls and working practices in place, odours can be contained and reduced appropriately. The sources of potential odour generation are:

- delivery, storage and treatment of incoming waste;

- activities associated with the infilling of wastes within Cell 6, associated with disposal of freshly tipped waste;
- landfill gas arising from the decomposition of waste within Cell 6; and
- transfer of waste offsite.

Typical chemical odorants associated with putrescible wastes which may form part of the residual waste are detailed in Table 2-1.

Table 2-1
Wastes - Typical Primary Chemical Odorants

Source	Descriptive Terms	Typical Primary Chemical Odorants
Food	Putrid, sour, fishy, rotten vegetables, rotten meat.	Putrescine, cadaverine, amines, sulphides, ammonia
General Commercial / Domestic Waste	Bottom of dustbin, rotten cabbage, fruity/citrus, acrid, sour, rotten, putrid	Esters (e.g. Butanoates), odours directly from volatilisation of chemicals from foods e.g. organic acids
Green Waste / silage	Woody, ammonia, earthy, piny.	Terpenes, amines, aromatics, ammonia.

Table Source: Applied Environmental Research Centre Ltd, Guidance Manual for Landfill Managers on the Assessment and Control of Landfill Odours (October 2000)

Putrescible waste is generally regarded as being offensive in nature when perceived at sufficiently high concentrations.

The European Waste Codes (EWC) Permitted to be received and infilled within Cell 6 are detailed in Table 2-2. The Permitted wastes will be detailed within the Waste Acceptance Procedures for the landfill.

Table 2-2
List of Wastes – Cell 6

Waste Code	Description
19	WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION/INDUSTRIAL USE
19 12	Wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified
19 12 12	Other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11

The waste types permitted to be received and processed within the WTS are detailed in Table 2-3. The permitted wastes are detailed within the Waste Acceptance Procedures (WAP) for the WTS included as Appendix 02 of the Operating Techniques and Management Plan (OTMP) included in Section 12 of this application.

Table 2-3
List of Wastes – WTS

Waste Code	Description
01	WASTES RESULTING FROM EXPLORATION, MINING, QUARRYING, AND PHYSICAL AND CHEMICAL TREATMENT OF MINERALS
01 01	Wastes from mineral excavation
01 01 01	Wastes from mineral metalliferous excavation
01 01 02	Waste from mineral non-metalliferous excavation
01 03	Wastes from physical and chemical processing of metalliferous minerals
01 03 06	Tailings other than those mentioned in 01 03 04 and 01 03 05
01 03 08	Dusty and powdery wastes other than those mentioned in 01 03 07
01 04	Wastes from physical and chemical processing of non-metalliferous minerals
01 04 08	Waste gravel and crushed rocks other than those mentioned in 01 04 07
01 04 09	Waste sand and clays
01 04 10	Dusty and powdery wastes other than those mentioned in 01 04 07
01 04 11	Wastes from potash and rock salt processing other than those mentioned in 01 04 07
01 04 12	Tailings and other wastes from washing and cleaning of minerals
01 04 13	Wastes from stone cutting and sawing other than those mentioned in 01 04 07
01 05	Drilling muds and other drilling wastes
01 05 04	Freshwater drilling muds and wastes
06	WASTES FROM INORGANIC CHEMICAL PROCESSES
06 03	Manufacture, Formulation, Supply and use of Salts and their Solutions and Metallic Oxides
06 03 14	Solid salts and solutions other than those mentioned in 06 03 11 and 06 03 13
06 03 16	Metallic oxides other than those mentioned in 06 03 15
06 13	Wastes from inorganic chemical processes not otherwise specified
06 13 03	Carbon black
10	WASTES FROM THERMAL PROCESSES
10 01	Wastes from power stations and other combustion plants (except 19)
10 01 01	Bottom ash, slag and boiler dust (excluding boiler dust mentioned in 10 01 04)
10 01 02	Coal fly ash
10 01 03	Fly ash from peat and untreated wood
10 01 05	Calcium-based reaction wastes from flue-gas desulphurisation in solid form
10 01 15	Bottom ash, slag and boiler dust from co-incineration other than those mentioned in 10 01 14
10 01 17	Fly ash from co-incineration other than those mentioned in 10 01 16
10 01 19	Wastes from gas cleaning other than those mentioned in 10 01 05, 10 01 07 and 10 01 18
10 01 24	Sands from fluidised beds

10 02	Wastes from the iron and steel industry
10 02 01	Wastes from the processing of slag
10 02 02	Unprocessed slag
10 03	Wastes from aluminium thermal metallurgy
10 03 20	Flue-gas dust other than those mentioned in 10 03 19
10 03 22	Other particulates and dust (including ball-mill dust) other than those mentioned in 10 03 21
10 03 24	Solid wastes from gas treatment other than those mentioned in 10 03 23
10 03 26	Filter cakes from gas treatment other than those mentioned in 10 03 25
10 03 30	Wastes from treatment of salt slags and black drosses other than those mentioned in 10 03 29
10 05	Wastes from zinc thermal metallurgy
10 05 04	Other particulates and dust
10 06	Wastes from copper thermal metallurgy
10 06 04	Other particulates and dust
10 07	Wastes from silver, gold and platinum thermal metallurgy
10 07 04	Other particulates and dust
10 07 05	Filter cakes from gas treatment
10 08	Wastes from other non-ferrous thermal metallurgy
10 08 04	Particulates and dust
10 08 13	Carbon-containing wastes from anode manufacture other than those mentioned in 10 08 12
10 08 16	Flue-gas dust other than those mentioned in 10 08 15
10 09	Wastes from casting of ferrous pieces
10 09 03	Furnace slag
10 09 06	Casting cores and moulds which have not undergone pouring other than those mentioned in 10 09 05
10 09 08	Casting cores and moulds which have undergone pouring other than those mentioned in 10 09 07
10 09 10	Flue-gas dust other than those mentioned in 10 09 09
10 09 12	Other particulates other than those mentioned in 10 09 11
10 09 14	Waste binders other than those mentioned in 10 09 13
10 09 16	Waste crack-indicating agent other than those mentioned in 10 09 15
10 10	Wastes from casting of non-ferrous pieces
10 10 06	Casting cores and moulds which have not undergone pouring, other than those mentioned in 10 10 05
10 10 08	Casting cores and moulds which have undergone pouring, other than those mentioned in 10 10 07
10 10 10	Flue-gas dust other than those mentioned in 10 10 09
10 10 12	Other particulates other than those mentioned in 10 10 11
10 10 14	Waste binders other than those mentioned in 10 10 13
10 10 16	Waste crack-indicating agent other that those mentioned in 10 10 15
10 11	Wastes from manufacture of glass and glass products

10 11 03	Waste glass-based fibrous materials
10 11 05	Particulates and dust
10 11 10	Waste preparation mixture before thermal processing, other than those mentioned in 10 11 09
10 11 12	Waste glass other than those mentioned in 10 11 11
10 11 16	Solid wastes from flue-gas treatment other than those mentioned in 10 11 15
10 11 20	Solid wastes from on-site effluent treatment other than those mentioned in 10 11 19
10 12	Wastes from manufacture of ceramic goods, bricks, tiles and construction products
10 12 01	Waste preparation mixture before thermal processing
10 12 03	Particulates and dust
10 12 05	Filter cakes from gas treatment
10 12 06	Discarded moulds
10 12 08	Waste ceramics, bricks, tiles and construction products (after thermal processing)
10 12 10	Solid wastes from gas treatment other than those mentioned in 10 12 09
10 12 12	Wastes from glazing other than those mentioned in 10 12 11
10 13	Wastes from manufacture of cement, lime and plaster and articles and products made from them
10 13 01	Waste preparation mixture before thermal processing
10 13 04	Wastes from calcination and hydration of lime
10 13 06	Particulates and dust (except 10 13 12 and 10 13 13)
10 13 07	Filter cakes from gas treatment
10 13 11	Wastes from cement-based composite materials other than those mentioned in 10 13 09 and 10 13 10
10 13 14	Waste concrete
11	WASTES FROM CHEMICAL SURFACE TREATMENT AND COATING OF METALS AND OTHER MATERIALS; NON-FERROUS HYDRO METALLURGY
11 01	Wastes from chemical surface treatment and coating of metals and other materials (for example galvanic processes, zinc coating processes, pickling processes, etching, phosphatising, alkaline degreasing, anodising)
11 01 10	Filter cakes other than those mentioned in 11 01 09 only if moisture content is <10% unless otherwise agreed with NRW
12	WASTES FROM SHAPING AND PHYSICAL AND MECHANICAL SURFACE TREATMENT OF METALS AND PLASTICS
12 01	Wastes from shaping and physical and mechanical surface treatment of metals and plastics
12 01 02	Ferrous metal dust and particles
12 01 15	Machine sludges other than those mentioned in 12 01 14 only if moisture content is <10% unless otherwise agreed with NRW
12 01 21	Spent grinding bodies and grinding materials other than those mentioned in 12 01 20
15	WASTE PACKAGING, ABSORBENTS, WIPING CLOTHS, FILER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED
15 01	Packaging (including separately collected municipal packaging waste)
15 01 07	Glass packaging

15 02	Absorbents, filter materials, wiping cloths and protective clothing
15 02 03	Absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02
16	WASTES NOT OTHERWISE SPECIFIED IN THE LIST
16 01	End-of-life vehicles from different means of transport [including off-road machinery] and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)
16 01 12	Brake pads other than those mentioned in 16 01 11
16 01 19	Plastic
16 01 20	Glass
16 01 22	Light and heavy vehicle fragmentiser wastes
16 03	Off-specification batches and unused products
16 03 04	Inorganic wastes other than those mentioned in 16 03 03
16 11	Waste linings and refractories
16 11 02	Carbon-based linings and refractories from metallurgical processes others than those mentioned in 16 11 01
16 11 04	Other linings and refractories from metallurgical processes other than those mentioned in 16 11 03
16 11 06	Linings and refractories from non-metallurgical processes others than those mentioned in 16 11 05
17	CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)
17 01	Concrete, bricks, tiles and ceramics
17 01 01	Concrete
17 01 02	Bricks
17 01 03	Tiles and ceramics
17 01 07	Mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
17 02	Wood, glass and plastic
17 02 02	Glass
17 03	Bituminous mixtures, coal tar and tarred products
17 03 02	Bituminous mixtures other than those mentioned in 17 03 01
17 04	Metals (including their alloys)
17 04 11	Cables other than those mentioned in 17 04 10
17 05	Soil (including excavated soil from contaminated sites), stones and dredging spoil
17 05 04	Soil and stones other than those mentioned in 17 05 03
17 05 06	Dredging spoil other than those mentioned in 17 05 05
17 05 08	Track ballast other than those mentioned in 17 05 07
17 06	Insulation materials and asbestos-containing construction materials
17 06 04	Insulation materials other than those mentioned in 17 06 01 and 17 06 03
17 09	Other construction and demolition wastes
17 09 04	Mixed construction and demolition wastes

19	WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION/INDUSTRIAL USE
19 01	Wastes from incineration or pyrolysis of waste
19 01 12	Bottom ash and slag other than those mentioned in 19 01 11
19 01 14	Fly ash other than those mentioned in 19 01 13
19 01 16	Boiler dust other than those mentioned in 19 01 15
19 01 18	Pyrolysis wastes other than those mentioned in 19 01 17
19 01 19	Sands from fluidised beds
19 02	Wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)
19 02 03	Premixed wastes composed only of non-hazardous wastes
19 03	Stabilised/Solidified Wastes
19 03 05	Stabilised wastes other than those mentioned in 19 03 04
19 03 07	Solidified wastes other than those mentioned in 19 03 06
19 04	Vitrified waste and wastes from vitrification
19 04 01	Vitrified waste
19 10	Shredding or Metal Containing Wastes
19 10 01	Iron and steel waste
19 10 02	Non-ferrous waste
19 10 04	Fluff-light fraction and dust other than those mentioned in 19 10 03
19 10 06	Other fractions other than those mentioned in 19 10 05
19 12	Wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified
19 12 04	Plastic and rubber
19 12 05	Glass
19 12 09	Minerals (for example sand, stones)
19 12 12	Other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11
19 13	Wastes from soil and groundwater remediation
19 13 02	Solid wastes from soil remediation other than those mentioned in 19 13 01
20	MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS
20 01	Separately collected fractions (except 15 01)
20 01 02	Glass
20 01 40	Metals
20 01 41	Wastes from chimney sweeping
20 02	Garden and park wastes (including cemetery waste)
20 02 02	Soil and stones

2.4 Landfilled Wastes

The activity of infilling of waste within Cell 6 will be associated with the potential for generation of odour, during the movement and compaction of waste by plant and machinery. However, the active working area is minimised to reduce the pathway for potential generation. Furthermore, a daily cover is applied at the end of the working day to minimise potential for odour generation. Inert soils will be used for this daily cover.

2.5 Stored Wastes within the WTS

The purpose of the WTS is to bulk and process wastes for transfer to the landfill and if required export off-site. Therefore, storage of wastes within the building is minimised as much as possible. This has the advantage of reducing the time for the putrescible fraction of the waste to be degrading and therefore odours to be generated.

Once received and processed, any waste material stored on site will not exceed a of maximum 72-hours for particularly odorous wastes and 1 week for all other wastes.

Bays will be cleaned down regularly to avoid older materials building up and degrading and potentially releasing odours.

2.6 Exported Wastes

Once processed within the WTS, the movement of waste to the tipping face or the export of wastes will be within vehicles which will be closed or covered.

2.7 Release Points / Potential Odour Generation Sources

The release points for the odour sources detailed above are described in Table 2-4. The release points consider all unintentional non-emergency releases that may occur. Release occurrences considered an emergency are addressed in Section 5.0.

Table 2-4
Odour Generation Sources – WTS

Odour Generation Activity	Location	Factors affecting Source	Odour Risk
Delivery of waste ingress	WTS Reception Building and landfill surface of Cell 6	State of decomposition on arrival at facility; Performance of roller shutter doors	High
Infilling of wastes	Landfill surface of Cell 6	State of decomposition on arrival at landfill, movement and disturbance of waste during infilling	High
Landfill gas	Landfill surface of Cell 6	State of decomposition, performance of capping and extraction system	High
Waste Storage within the WTS	Reception Building	State of decomposition on arrival at facility; Containment with negative pressure	High

Odour Generation Activity	Location	Factors affecting Source	Odour Risk
Waste Processing within the WTS	Reception Building	State of decomposition on arrival at facility; Containment with negative pressure	High
Export of waste from WTS	Vehicle transfer	External vehicles	Low

2.8 Pathways

The pathway by which odours may impact upon receptor locations is a result of atmospheric dispersion. In general, high wind speeds lead to emitted odour being rapidly dispersed and diluted due to turbulence, and conversely low wind speeds inhibit the dilution of odours.

Prevailing wind directions are considered in assessing the likelihood and management of emission risks. Wind speed and direction data for the site location is presented in Figure 2-1, based upon a 2012 – 2016 (inclusive) 5-year period, sourced from the Hawarden observation station located approximately 7km east-south-east of the facility. It shows the prevailing wind to be from south-eastern and north-western sectors, with a frequent south-western component. As a result, the potential impact of emissions is likely to be greater in north-western through to south-eastern sectors.

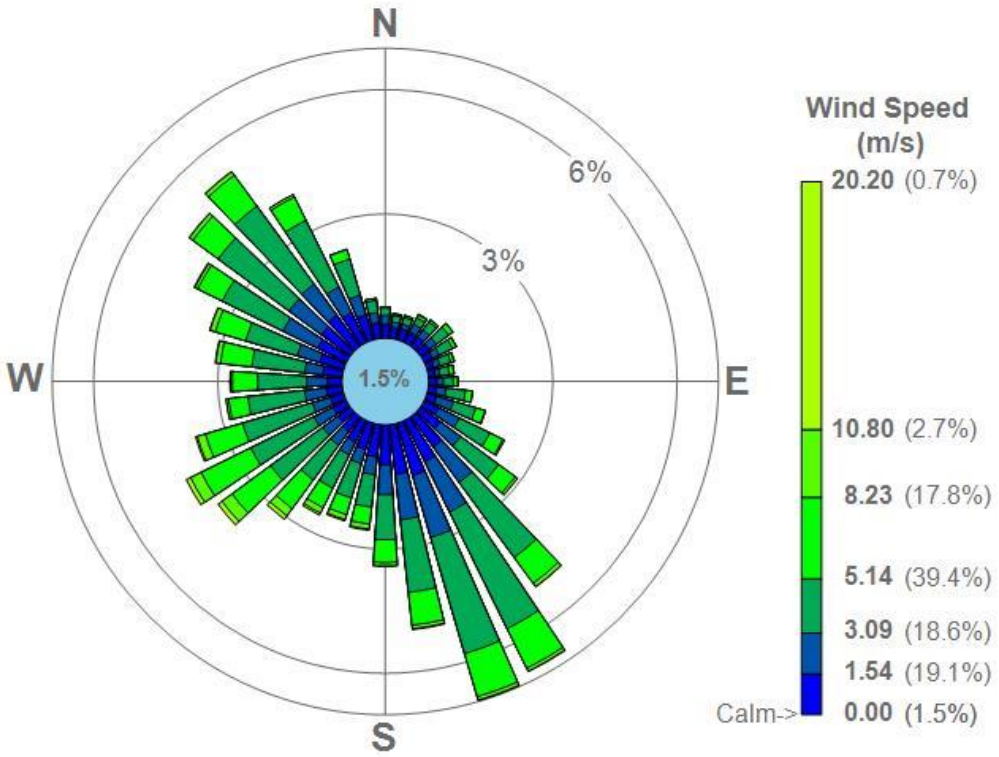

Figure 2-1
Wind Rose for Site Location, 2012 – 2016 (Hawarden)

2.9 Receptors

The likelihood and frequency of exposure to odour arising from the facility is determined by the magnitude of release, the prevailing meteorological conditions, and the distance and direction of receptors in relation to the facility.

Potentially sensitive receptor locations for odour are typically defined as locations where people spend time and expect a reasonable level of amenity. Therefore, residential properties are generally regarded as the most potentially sensitive locations and recreational areas being of medium sensitivity.

The closest residential property is Parry Cottage, which lie 20m from the boundary at the southeast corner. Ewloe Wood House lies 120m northeast of the site, whilst Pottery Cottages are located 200 metres to the east of the site. Further residential properties are located approximately 280 metres northwest and on Smithy Lane, which is located 400m east of the site.

The A55 Northop Services lie 20m from the sites eastern boundary and include a petrol station, 3 dining venues and a Holiday Inn (with residential use).

To the north, south and west of the site there are a number of industrial estates. The nearest industrial site is 20m west of the permit boundary and comprises a disused quarry. Immediately south of the site at 75m from the site boundary, is a mixed use commercial and industrial estate which consists of several building material suppliers and a manufacturing facility. A number of commercial units are situated adjacent to the northern edge of the site including Deeside Truck Services, a Fire Door manufacturer and a self-storage facility.

Reference should be made to Table 2-5 and Figure 2-2 for presentation of odour sensitive receptors surrounding the site.

Table 2-5
Sensitive Receptors - Odour

ID	Receptor	Type	Sensitivity to Odour	X-coordinate	Y-coordinate
R_1	Parry's Cottage	Residential	High	327787	366321
R_2	Holiday Inn	Leisure	High	327897	366607
R_3	Service Station	Commercial	Medium	327799	366746
R_4	The Box	Residential	High	327606	366919
R_5	Alltami House	Residential	High	327443	366807
R_6	Pinfold Cottage	Residential	High	327439	366837
R_7	Ewloe Wood House	Residential	High	327455	366919
R_8	Services (Subway/Costa)	Commercial	Medium	327838	366600
R_9	Ewloe Barns Industrial Estate	Industrial	Low	327744	366232
R_10	SCANIA units	Industrial	Low	327567	366762
R_11	AH Plant Hire	Industrial	Low	327467	366357
R_12	Services (Diner)	Commercial	Medium	327826	366664

ID	Receptor	Type	Sensitivity to Odour	X-coordinate	Y-coordinate
R_13	Services (future development)	Commercial	Medium	327861	366533
R_14	RAP Pumps	Commercial	Medium	327451	366273
R_15	FCC Depot	Commercial	Medium	327444	366233
R_16	Pottery Cottages	Residential	High	328046	366320
R_17	Unnamed House	Residential	High	327889	366499

Figure 2-2
Receptor Locations - Odour

3.0 ODOUR CONTROL MEASURES – NORMAL OPERATION

The overall aim of the OMP is to ensure that *All Appropriate Measures* are applied; for this reason the facility would be operated and managed in accordance with the accepted hierarchy of preferred controls, that is:

1. prevent the formation or emission of odorous compounds in the first place; and
2. where this is not practicable, minimise the release of odour.

Appropriate odour control measures to be applied across the landfill site (including for the control of landfill gas), in addition to the WTS, are separately identified.

3.1 Landfill Site

3.1.1 Waste Acceptance Procedures

The Site Manager will liaise with the waste producers and transport contractors with a view to minimising the storage and transport periods for waste being delivered to the site. Those wastes permitted to be received and infilled within Cell 6 are detailed within Section 2.0.

Rigorous control of wastes delivered to the site is required, with contaminated or odorous wastes (stored too long) rejected in line with the procedures in the WAP, OTMP and Environmental Permit. Where safe, deliveries will be visually inspected at the weighbridge by trained staff to determine the basic characteristics of the waste and ensure it accords with the pre-acceptance paperwork. Where visual inspection at the weighbridge is not possible, waste will be visually inspected at the WTS or tipping face and the machine operator informed via radio of this action.

Trained staff will review and inspect incoming wastes as it is deposited at the site, to recognise odorous material. Malodorous waste will be returned to the producer or sent to another authorised facility for treatment. Should waste be found to be unsuitable the load will remain on the vehicle for immediate off-site transfer. Any such events will be recorded in the site diary and NRW informed where necessary.

If the site reaches capacity and / or operational difficulties occur, incoming wastes will be diverted to another authorised treatment facility.

Incoming mixed waste will be processed as soon as practicably possible to ensure that any other malodorous (or potentially malodorous) wastes contained within the incoming mixed waste which were not identified during deposit can be identified, isolated and rejected without delay.

Should a load be deposited within the landfill site and found to be non-compliant by machine operatives, the material will be immediately reloaded and rejected off site having given consideration for the relevant Duty of Care requirements. Should the producer/carrier have left the site, this load will be placed in a quarantine area awaiting collection for delivery to a suitably permitted facility. Such events will be recorded in the site diary.

3.1.2 Plant and Equipment

The Site Manager will ensure that sufficient plant and equipment is maintained at the landfilling area to adequately place, compact, and cover all delivered waste in a progressive manner.

3.1.3 Compaction of Waste

The progressive compaction of the waste during the working day using mobile compaction equipment will be used to assist in the prevention of odours. The active area and tipping face size will reflect operational requirements and will be minimised to reduce the pathway for odorous emissions and to prevent the build-up of significant moisture prior to final capping / gas control emplacement.

3.1.4 Application of Daily Cover

The Site Manager or nominee will ensure that there are adequate supplies of daily cover material available at the facility. A layer of cover material will be applied to the deposited waste in a progressive manner throughout the day in order to ensure the waste is adequately covered at the end of each working day. The integrity of daily cover will be routinely inspected and maintained, as required.

3.1.5 Minimising Disturbance of Previously Infilled Waste

Measures will be taken to ensure that disturbance, exposure and movement of previously infilled waste within Cell 6 is avoided or minimised, wherever possible.

During the surcharging of previously deposited waste, removal of any capping material will be staged and spatially limited wherever possible and will be undertaken at the latest possible occasion prior to waste emplacement. The method of working for the waste surcharging operations has been designed with the intention to minimise odour and gas release from the site.

3.1.6 Landfill Gas Infrastructure

As waste infilling develops within Cell 6 and the wider site, the gas abstraction network will be developed and maintained and will be operated in accordance with the site's gas management plan (GMP), included within the OTMP, in order to maintain gas control.

The gas collection network will be connected to the on-site gas utilisation plant which will include a flare and one engine, for flaring and/or energy production.

Where operationally practicable, additional gas abstraction infrastructure will be installed across completed areas of the site as soon as possible following completion of waste infill and cap emplacement.

3.1.7 Landfill Gas Management

In line with the site's GMP, once the gas abstraction network is established across Cell 6, field balancing will be carried out at twice monthly intervals with a manifold check also undertaken on a weekly basis. Each well will be balanced at the relevant manifold or wellhead depending on its location on the gas field. The wells will be balanced in accordance with Mold Investment's gas balancing protocol, which uses the 'free nitrogen' level as an indication of abstraction efficiency. Any anomalies, large changes from the previous balance, air leaks, etc. will be investigated at the wellhead (where accessible) at the time of the balance. During a manifold check the outlet level at the manifold will be checked only. If this is significantly different to the result recorded during the previous week's balance then the manifold will be balanced fully.

Balancing will be carried out by experienced site personnel. However, to ensure that the correct actions are taken, the data will also be reviewed by the Site Manager (or representative) before keeping on file. Records will be made available to NRW, upon request.

The gas treatment systems work on a flare-led basis, which will ensure that the level of gas extraction from the site is not affected by the engines coming on and offline and/or any alteration in the load. The flare will automatically treat any gas that the engine(s) would have otherwise used thus ensuring that the maximum sustainable flow from the site is maintained at all times.

In order to ensure that the gas treatment systems work efficiently, weekly checks be undertaken where possible of pressure losses across filters, etc. The temperature of the flare (when alight) will also be checked to be compliant.

3.1.8 Gas Field Maintenance

During each balancing or manifold check, the general state of the gas field will be visually checked and knockout pot counter readings will be taken to assess their operation since the previous week. Any defects will be dealt with as detailed in the GMP. Where defects are critical to gas control, works will be dealt with as quickly as possible. In addition, monthly audits of the gas collection system will be undertaken in order to identify any ineffective wells.

Any works required to be undertaken on the gas field at the site will be undertaken in accordance with GMP. Where such works are undertaken, a daily record will be made at the end of each working day to ensure that all elements of the gas system that have been worked on have been reconnected to the gas system or have been sealed to prevent the emission of gas odour until such time that reconnection can be made. The Site Manager retains the responsibility to ensure that all potential sources of odour have been minimised.

3.1.9 Leachate Management and Storage

All leachate abstraction and monitoring infrastructure will be adequately sealed and will be connected to the gas abstraction system where necessary to prevent any potential for fugitive odour release. Regular checks will be undertaken by the site management to ensure that the leachate wells remain sealed and under adequate extraction from the gas collection system.

The storage of leachate within the site will be in covered storage units, ensuring minimal interchange of ambient air across the surface of the leachate stored in the unit. The open storage of leachate in temporary or permanent lagoons within the site is not proposed under normal operational circumstances.

3.2 Waste Transfer Station

3.2.1 Reception Building

The received wastes have the potential to arrive at the facility in an advanced state of decomposition due to differing sources of waste (from commercial, household and industrial sources). The receipt of waste, bulking and loading operations will take place within the dedicated enclosed building.

During the working day the fast action roller shutter doors will open to facilitate the entry / exit of waste collection vehicles. Fast acting roller shutter doors will remain closed with the exception of when vehicles enter and exit; thus reducing the fugitive emissions of odour during vehicle entry / exit. A policy and procedure for the management of these doors will be incorporated into the site working plan/operating procedures and training will be provided to all relevant staff to ensure that:

- pre-treatment operations that could generate elevated fugitive emissions are stopped whilst the doors are opened;
- where possible only one door is open at any one time;
- doors are only opened to allow vehicles to enter the reception building once the vehicle is aligned to reverse;
- vehicles are to reverse slowly into the building (i.e. <5mph) to minimise air displacement;
- once a vehicle has safely entered the building, the door will close immediately behind it;
- the opening of doors to permit vehicles to leave the site will only occur once the driver has signalled confirmation that he is ready to exit and doors will be immediately enclosed upon exit; and
- in the event that two vehicles arrive at the site at the same time the site operative will instruct one the vehicles which doors to enter by. Doors will not stay open to allow the second vehicle to enter the

building behind the first so the vehicle will be directed to another available door and tip simultaneously within the building.

3.2.2 WAP

During peak operational periods, once the anticipated tonnage has been accepted for the facility for that day, the facility will only accept additional wastes following an evaluation of likely tonnages over the coming days to ensure that a backlog of waste in storage in the reception building does not occur. It is considered unacceptable by the management for wastes to be accepted into the storage and reception areas that are likely to be stored for periods that would result in increased decomposition and therefore odour generation potential. The maximum amount of time for odorous waste to be stored prior to being sent off site for onward treatment will be 72-hours.

The WAP will be followed as per details provided within the OTMP. This includes a procedure for how to manage rejected loads and the completion of a rejected load form.

Certain feed stocks accepted will receive priority into the WTS process, these include:

- any wastes designated as high risk on site;
- wastes which are classified as high odour risk potential; and
- when the site operative is alerted to waste being particularly odorous.

3.2.3 Waste Storage and Transfer Control

Odorous waste will be stored on site for no longer than 72-hours at any one time; and will be stored in the designated bays.

3.2.4 Tipping Area – Floor Cleaning

The vehicles will reverse into the pre-treatment storage bays before transfer to the treatment plant. However, there may be occasions, where waste is tipped onto the floor for inspection prior to being transferred to the storage bays. There may also be occasions where driver error leads to waste falling onto the floor of the tipping area.

A programme of routine wash-down of the tipping hall floor will take place. Cleaning will take place during off-peak periods to minimise interruption to waste deliveries.

3.3 General Housekeeping

Regular cleaning of operational areas such as roads, drainage channels and holding tank will be carried out to discourage odour generation from old degrading materials.

3.4 Loading and Transport of General Wastes

All waste vehicles leaving the site will be securely sheeted or enclosed at all times.

3.5 Mitigation of Community Impacts

The following measures have been adopted to ensure a 'good neighbour' approach to local residents:

- engagement with local residents and stakeholders, methods of engagement with the wider public will consider use of use of newsletters or forums on a case by case basis;
- a telephone number will be made available for residents to contact the company, and will be found on the Site Identification Board at the entrance to the site;

- engagement with local residents should odour problems be anticipated to keep the public informed of progress, remedial measures and timescales;
- responding to odour complaints promptly and keeping complainant informed of outcome of investigation; and
- meetings to be held with local residents if required in discussion with NRW.

4.0 MONITORING AND MAINTENANCE

Monitoring of process controls, odour containment, odorous releases, and dispersion pathways are as described in the sections below.

4.1 Monitoring Potential Odour Sources

The waste as received and stored will be monitored in the following ways:

- the waste will be subject to document checks at the weighbridge to ensure it conforms to the permitted WAP;
- the waste will be subject to visual inspection as part of the waste reception protocols to ensure all wastes conform to the agreed WAP;
- the shift manager and mobile plant operative will be responsible for visually monitoring and noting the placement of received waste to ensure older waste is processed as a priority;
- the shift manager and mobile plant operative monitor, via sniff-test, will determine whether there is a requirement for odour neutralising sprays (these may also be operated to control dust); and
- the shift manager and mobile plant operative monitor, via sniff-test, will determine whether particularly malodorous loads require quarantine or rejection.

4.2 Landfill

4.2.1 Surface Emissions

Landfill Technical Guidance Note LFTGN07v2[2] provides a methodology to determine the emission of methane from the surface of a landfill. This guidance sets out a two-stage approach (Stage 1 walkover and Stage 2 flux survey) for the monitoring of emissions through a landfill cap, and hence determining the effectiveness of the cap. Monitoring (and frequency of monitoring) would be carried out as required by this guidance on the basis of the development of the temporary and permanent cap.

The surface emissions compliance limits are detailed in Table 5-1 of the LFGRA included as Section 9 of the EP application.

4.2.2 In-Waste Landfill Gas

In-waste monitoring of the following parameters will be routinely undertaken at the landfill site:

- Methane;
- Carbon dioxide;
- Oxygen;
- Temperature;
- Atmospheric and differential pressure; and
- Gas flow rate / suction (on collection wells).

Temperature and carbon monoxide are only measured as and when required. Annual trace analysis is also required of the Gas Line to the gas utilisation compound.

[2] Environment Agency, Guidance on Monitoring Landfill Gas Surface Emissions V2 (LFTGN07_v2) 2010.

4.2.3 Perimeter Landfill Gas – Sub Surface

Monitoring is typically carried out monthly, but weekly when required by an Action Plan. Perimeter borehole monitoring of the following parameters will be routinely undertaken at the landfill site:

- Methane;
- Carbon dioxide;
- Oxygen;
- Temperature; and
- Atmospheric and differential pressure.

Other gases, for example hydrogen sulphide, carbon monoxide, may be monitored within perimeter boreholes if considered necessary at any given time, as will gas pressures.

The approach for setting carbon dioxide action levels is detailed in Table 5-2 of the LFGRA included as Section 9 of the EP application.

The approach for setting methane action levels and compliance limits is detailed in Table 5-3 of the LFGRA included as Section 9 of the EP application.

Background data collected prior to the commencement of filling will be analysed to establish the actual compliance limits (for methane) and action levels (for methane and carbon dioxide) and is likely to be agreed as a pre-operational condition.

4.2.4 Landfill Gas Engine and Flare

Emissions from the combustion plant, i.e. gas utilisation engines and flare (if operated for more than 10% of the hours in a year) will be monitored annually using methodologies compliant with NRW and Health and Safety Executive guidance at the time.

Emission levels for the landfill gas utilisation plant are detailed in Table 5-4 of the LFGRA included as Section 9 of the EP application.

Emission levels for the landfill gas flares are detailed in Table 5-5 of the LFGRA included as Section 9 of the EP application.

4.2.5 Perimeter/ Receptor – Aerial Emissions

Off-site monitoring of landfill gas and / or trace gasses will only be undertaken in response to persistent odour complaints or as part of the Action Plan relating to exceedances of other compliance limits. In this event, monitoring would be undertaken in accordance with EA Technical Guidance notes M9 and M13.

4.3 Waste Transfer Station

4.3.1 Odour Containment Monitoring

Odour containment is the key to minimising emissions and will be monitored though routine maintenance checks on roller shutter door use and building structural integrity. Olfactory observations are also an important monitoring measure and are addressed in Section 4.3.2.

The effectiveness of the containment measures will be monitored in the following ways:

- the structural integrity of the building and plant fabric will be visually checked on a routine annual basis; and

- containment and structural integrity of all storage tanks, silos, and pipework will be visually checked on a monthly basis.

Containment System Monitoring

The effectiveness of the containment measures will be monitored in the following ways:

- the structural integrity of the fast action roller shutter doors (including fit) will be visually checked on a monthly basis by site operational staff; and
- the structural integrity of the building fabric will be visually checked on a routine annual basis.

4.3.2 Control Measures during Routine Maintenance

The facility will have no need for planned maintenance shutdown; typically individual pieces of equipment will be able to be isolated from the process to allow for service / maintenance.

During necessary maintenance works, there is the potential that the facility is more vulnerable or a risk of a small odour release (e.g. replacing a vent / fan for example).

4.4 Monitoring Ambient Odour (Landfill and WTS)

Monitoring ambient odour provides a broad indication of the effectiveness of the odour management as a whole, i.e. odour minimisation, containment and dispersion. This is a reactive process and should be considered as a final indicator of odour control effectiveness.

The assessment is "*sensory*" in that the human noise is used as the detector – a sound approach considering that no analytical instrument can give unified measure of a complex mixture of compounds in the same way that a human experiences odour.

Sniff testing is employed for the following reasons:

- as part of a survey at the site boundary during normal operations, to confirm the effective performance of odour management measures in place;
- at the site boundary during periods of adverse meteorological conditions, breakdowns or during other abnormal events to evaluate the effectiveness of the control measures in place and the likelihood that odour complaints will be received; and
- in the event that complaints are received, at the locations of sensitive receptors as part of the complaint investigation procedure outlined in the complaints form in Appendix B.

'Sniff tests' will follow the procedure detailed within Appendix C and be undertaken:

- weekly by trained site management with any issues recorded in the site logbook; and
- on a monthly basis by a team member (not reception building based team member) accompanying the site manager and results recorded.

4.5 Complaint Logging

A phone number for members of the public to contact the Operator with any complaints will be visible on the Site Identification Board at the entrance. Following the receipt of a complaint the Operator will endeavour to contact the complainant to provide feedback on actions taken to both assess the event and convey any remedial actions.

All complaints will be recorded on an Odour Complaint Form such as that presented in Appendix B and forwarded onto the Site's NRW Officer. Information that will be recorded will include the following:

- date and time of odour complaint and odour detection;

- location / address of complainant (where provided); and
- a description of the odour from the complainant.

Following an odour complaint, a trained member of staff will undertake a sniff test recording the results on an Odour Monitoring Form (Appendix A). Where possible the sniff test will be undertaken by a member of staff that does not routinely work within the reception building and would not therefore be accustomed to any malodours. If an odour is encountered, the source will be investigated by site management and the outcome recorded.

Investigations will include the likely source and cause of the odour and a review of the meteorological data. Suitable remedial action will be instigated, where required. The complainant will be informed of any action taken and all actions will be recorded.

Should no odour be observed, a record of the monitoring round will be taken and the meteorological conditions checked and a report provided to NRW with suitable feedback provided to the complainant.

4.6 Monitoring Meteorological Conditions

The Site Manager or other designated responsible person will record daily weather conditions in the Site Diary from data sources and from the on-site weather station.

The recording of meteorological data is an effective, management tool used for the following reasons:

- during routine operations, to plan where boundary monitoring should be focussed to assess odour impacts;
- at the time of abnormal events to predict where odour impacts could potentially occur; and
- in the investigation of odour complaints or to verify community observations.

4.7 Recording of Results and Reporting

Daily records will be maintained and include the following details (where applicable)

- results of inspections and any olfactory monitoring carried out by site personnel;
- weather conditions including wind direction (automatically recorded and stored electronically);
- operational problems including date, time, duration and cause of problem;
- complaints received including address (if available); and
- details of corrective actions taken and any subsequent changes to operational procedures.

The weekly sniff tests undertaken will be made on the Odour Monitoring Form presented in Appendix A which will be filed and kept on site for inspection by NRW as and when required.

In the event that odour is detected at the site boundary, this will be noted in the site diary and the Site Manager will be informed to allow for appropriate steps to be taken to mitigate the odour. The results of the daily odour monitoring will not be reported to NRW unless required by the Permit, however it will be commented on in the Annual Monitoring Report.

4.8 Notifying NRW

In the event that an accident or incident occurs, the Operator will notify NRW as soon as practicably possible using the emergency 24hr phone line (0300 065 3000). The Site Manager for the facility will also notify the Regulatory Officer should any complaints be received directly to the site and advise what remedial measures have been undertaken. Copies of any complaints will be made available for NRW to review.

5.0 CONTINGENCIES

In accordance with NRW's Guidance on OMPs, contingency plans have been defined to react to situations where monitoring indicates that a potential odour source is not completely under control, or that adverse impact has occurred.

This includes accidents (or incidents) which would result in the loss of control of odorous substances and have the potential to cause an unacceptable short-term impact on the local community but are not considered an emergency situation.

5.1 Receipt of Particularly Odorous Wastes

It is considered unlikely that any waste received would be of sufficient magnitude to cause unacceptable odour impacts outside the site boundary and particularly odorous waste would be passed for priority treatment. However, should any particularly odorous wastes be received, these will be isolated and promptly removed from site, if not rejected before being deposited.

Where unacceptable odour exposure is traced back to a particular waste received, acceptance of further consignments of this waste category from that particular waste producer will be addressed with further investigations and identification of a solution.

5.2 Landfill

The regular monitoring of gas emissions from the landfill is illustrated in Section 4.2 above, which will ensure ongoing compliance limits are met and uncontrolled emissions are prevented.

5.2.1 Disturbed Waste

Where odorous emissions arise specifically from the exposure of previously emplaced waste as part of the planned surcharge operation, the exposed area will be covered and minimised as soon as practicably possible. Additional soil cover material will be applied to the area.

If necessary, disposal operations may be diverted to an emergency tipping area located within the WTS enclosed building. Similarly, excavation operations may be suspended until favourable conditions prevail if emissions from this activity have the potential to give rise to significant off-site odour impact.

5.2.2 Malodorous Waste

Where this issue is traced back to a specific waste type, acceptance of this waste will be put on hold pending further investigations.

5.2.3 Inadequate Cover or Capping

Additional temporary / daily cover will be applied to the identified area as soon as practicable. If the area is awaiting the installation of an engineered capping layer, the programme for capping works will be reviewed by the site management in order to identify any requirement and potential for bringing the planned works forward.

5.2.4 Inadequate Gas Control

Remedial action will involve one or more of the following, as required:

- Installation of additional gas wells;
- Increase suction on wells and operate outside of the normal balancing philosophy;
- Use of a temporary mobile flare (if full suction is not available from the gas plant);

- A comprehensive audit on the gas system to ensure its integrity and effectiveness; and
- Repairs to or replacement of any malfunctioning infrastructure for example pipelines, wellheads, knock out pots, flare.

5.2.5 Monitoring of Flare and Gas Engines

The efficiency of the gas flare and engine will be assessed at regular intervals in order to ensure that optimum combustion conditions are maintained in accordance with the site GMP. As will be required by the Permit conditions, flare/engine exhaust emissions monitoring will also be undertaken on an annual basis and assessed against the specified emission thresholds.

5.3 Waste Transfer Station

5.3.1 Compromised WTS Odour Containment

Odour containment may be compromised by damage to the building fabric or doors (extraction is dealt with separately).

In the case of a roller door motor malfunction, the doors will be operated manually whilst repairs are undertaken.

If doors are stuck open or building fabric is damaged then the following contingency measures will be implemented:

- arrangements made to re-establish containment;
- requirement for more odorous activities reviewed and suspended as appropriate e.g. loading/unloading, or screening; and
- minimise the presence of odorous materials e.g. processing existing waste and transferring off site as soon as practicable.

Odour surveys will be undertaken 3 times a day until an effective fix is implemented. If odour detected during surveys is considered likely to lead to unacceptable impacts then consideration will be given to ceasing waste acceptance if this would alleviate the problem. NRW and neighbours will be notified of the investigations and actions being taken.

5.3.2 WTS Over-Capacity

Breakdown of plant or maintenance to any plant may lead to reductions in the rate of processing and consequently the build-up of waste in the reception building. Trained and experienced fitters are on site to cope with standard equipment breakdowns and the onsite operatives to deal with standard maintenance.

Each day a review will be carried out of the stock in comparison to expected incoming waste, as well as expected processing. This will determine the available capacity and the ability to receive waste.

In the event that the reception building is not considered to have sufficient capacity, the Site Manager will consider the option for diverting incoming material to other waste management facilities to prevent build-up of waste beyond capacity.

5.4 Temporary Odorous Activities

In the unlikely event that it is necessary to undertake temporary actions that are likely to cause potentially significant odorous emissions. These activities may include, but are not limited to:

- in-waste gas well installation;
- leachate well retro-installation; and/or

- landfill cap removal for leachate trench construction.

In these situations, the Site Manager will contact NRW and other interested parties (e.g. residents) before such actions are taken to advise them of the operation being undertaken and that any odour will be of a temporary nature. This could include, for example, replacement of roller shutter doors if damaged beyond repair.

Additional control measures will incorporate:

- where practicable, timing operations when the prevailing wind direction is away from sensitive receptors; and
- ensuring prompt re-establishment of containment.

If such operations unavoidably coincide with unfavourable meteorological conditions (i.e. warm and still conditions) additional off-site odour monitoring will be undertaken to clarify the significance of offsite impact.

5.5 Abnormal Meteorological Conditions

Extreme meteorological conditions that promote the generation of odour and inhibit its effective dispersion, specifically high temperatures and stable conditions, may result in increased risk of impact at receptor locations.

Contingency measures to minimise the risk of unacceptable odour exposure at receptor locations during these conditions, will include but not be limited to consideration of:

- undertaking additional odour control performance testing to ensure optimum operation of the odour control units; and
- reviewing requirements for undertaking activities known to increase loading on odour control systems and reduce activities if practicable; and
- reviewing requirements for activities that involve building door opening and reduce frequency and duration of door opening if practicable.

5.6 Detection of odour at the site boundary or off-site during routine odour surveys or response to complaints

The olfactory survey (as detailed in Appendix C) will be followed and the odour source or sources identified by determining the sources of greatest odour intensity, contingency actions will be implemented as identified above.

The first assessment of an odour at the site boundary will be whether the odour has or is likely to leave site, if it has not and is not likely to leave site the problem that caused the odour shall be remedied to prevent continuation of odour. All information regarding action taken will be recorded on the external odour assessment sheet.

If an odour at a level which is likely to cause pollution is likely to leave the site boundary or has already left the site boundary, the site manager or representative will be notified immediately.

The olfactory survey will be repeated on consecutive days after initiation of corrective actions, until odour has reduced to an acceptable level.

NRW will be informed in line with Permit requirements.

5.7 Out of Hours Contact Details

An Emergency Duty Standby Number will be made available which will always be answered in the event of an emergency.

5.8 Receipt of an Odour Complaint

5.8.1 Complaint Logging

A phone number for members of the public to contact the Operator with any complaints will be visible on the Site board at the entrance. Following the receipt of a complaint the Operator will endeavour to contact the complainant to provide feedback on actions taken to both assess the event and convey any remedial actions.

All complaints will be recorded on an Odour Complaint Form such as that presented in Appendix B and forwarded onto the Site's NRW Officer. Information that will be recorded will include the following:

- date and time of odour complaint and odour detection;
- location / address of complainant (where provided); and
- a description of the odour from the complainant.

Following an odour complaint, a trained member of staff will undertake a sniff-test recording the results on an Odour Monitoring Form (Appendix C). Where possible the sniff test will be undertaken by a member of staff that does not routinely work within the reception building and would not therefore be accustomed to any malodours. If an odour is encountered, the source will be investigated by site management and the outcome recorded.

Investigations will include the likely source and cause of the odour and a review of the meteorological data. Suitable remedial action will be instigated, where required. The complainant will be informed of any action taken and all actions will be recorded.

Should no odour be observed, a record of the monitoring round will be taken and the meteorological conditions checked and a report provided to NRW with suitable feedback provided to the complaint.

5.8.2 Complaint Investigation

The following actions will be taken on receipt of an odour complaint:

1. The Site Manager will be informed of the odour complaint as soon as possible, including the location, time and date (if reported) of the complaint being lodged;
2. The Site Manager (or any appointed representative) will undertake the following assessment process:
   - review of the site operations and control systems at the site prior to and at the time of the complaint to include;
     - determine if waste was being received at the time of the complaint – either within the waste transfer station, or being infilled within Cell 6;
     - determine if highly odorous waste was being treated at the time of the complaint;
     - determine if any abnormal operating conditions occurring;
     - determine if any accidents or incidents requiring contingency actions were being undertaken;
     - determine if any emergency situations existed at the time.
   - review of the meteorological conditions (wind speed) prior to and at the time of the complaint – to establish whether a pathway can be established between the site and the complainant; and / or
   - review the previous history of complaints at the location identified.

The Site Manager (or appointed representative) will visit the complaint location as soon as is possible in order to subjectively determine odour presence / absence and, if present, odour characteristics and intensity in accordance with the procedure detailed in Appendix C and complete the complaint form (reproduced in Appendix B).

NRW will be informed in line with Permit requirements.

6.0 EMERGENCY PLANS

This section details the emergency actions that would be undertaken in case of accidents (or incidents) which would result in the loss of control of odorous substances and could have an unacceptable short-term impact on the local community.

The section considers the emergency scenarios, measures taken to minimise their occurrence and short-term measures to minimise impacts.

6.1 Prolonged WTS Plant Failure

In the unforeseeable event of complete WTS plant failure for a prolonged period (greater that the agreed retention time in the reception building) consideration will be given to the diversion of incoming waste to alternative permitted facilities.

6.2 Fire

Emergency Action Plans are detailed within the site's approved Fire Prevention Plan (FPP) that provides procedures for handling fires at the WTS.

With regard to management of odour impact, the key principles are prompt responses that contain the fire and attempt to extinguish it, minimise damage to containment and extraction infrastructure.

NRW would be informed of any such an occurrence, information would be made available to local residents if requested by NRW with regard to the measures being taken and the timescale to completion.

6.2.1 Explosion

The risk of the explosion is considered to be an extremely unlikely.

6.3 Major Spillage / Leak

Details of emergency procedures to be initiated in case of a failure of containment and major spillage / leaks are detailed in the site's OTMP.

NRW would be informed of any such an occurrence, information would be made available to local residents if requested by NRW with regard to the measures being taken and the timescale to completion.

6.4 Flooding

The risk of flooding is considered to be extremely unlikely due to the drainage arrangements on the site. If the site becomes flooded, this would inhibit effective reception and processing of delivered waste. Material will either be rapidly processed; or where not possible, removed from site.

Widespread flooding of the site may also prevent the operation of key electrical equipment and vehicular access. Under such extreme conditions no further operations would be undertaken (i.e. opening of doors) and no further waste would be received, and it is likely that NRW would be involved in supervision of any clean-up operation. Waterlogged material will be removed from site.

Widespread flooding may prevent access to site. In such a situation no further waste would be able to access the site and priority would be given to ensuring the ongoing effective processing of waste.

Reference should be made to the Flood Risk Assessment submitted for planning for further detail on the risk of flooding.

6.5 Power Failure

The WTS contains its own back-up power generation facility which will be sufficient to ensure operations can continue in the event of an external power cut. Day-to-day operation of the landfill site requires no power.

6.6 Staff Absence

Short-term staff shortages (such as a few days illness) will not affect the ability of the site to operate effectively as other staff members can be reassigned to critical operations. In the event of prolonged absence of staff members, temporary staff will be recruited and appropriately trained to fulfil non-critical roles whilst other more experienced staff members are reassigned.

6.7 Summary of Emergency Control Measures

To ensure adequate mitigation measures are in place to address all possible odour emission scenarios, the various scenarios and their response measures are presented in Table 6-1.

Table 6-1
Odour Generation Sources

Scenario	Emergency Operations	Location	Likely effect on emissions inventory	Contingency / Control Measures
Prolonged WTS breakdown	Emergency	All operational locations	Risk of increased impact from area of site where normal operations are affected during and after breakdown	A supply of spares critical to the operations will be kept on site. To promptly undertake any repairs, or plant would be hired if required. If unavailable, the relevant operations would be suspended if necessary. Contingency arrangement for diversion of feedstock implemented if required.
Fire	Emergency	Reception building	Risk of impact from any area of the site affected by fire	Fire risk procedures adopted, if required operations will cease in building until all plant restored.
				Further receipt of waste will be reduced or suspended until fire is under control and site has been deemed safe and operation is restored.
Flood	Emergency	All operational locations	Risk of increased impact from area of site where normal operations are affected during and after flood	Risk of flooding regarded to be low. If it should occur and waste is submerged, there is a high likelihood of rapid onset of degradation and anaerobic conditions. Waste requires immediate removal off site

Scenario	Emergency Operations	Location	Likely effect on emissions inventory	Contingency / Control Measures
Transfer failure	Emergency	Reception building	Increased emissions during storage over 72 hours for odorous wastes	Operating procedures in place to prevent breach of waste retention timescales operating first in first out principle during normal operations. In emergency situation site would liaise with NRW and agree an action plan.

7.0 DOCUMENT UPDATES AND REVIEWS / MANAGEMENT

7.1 Responsible Staff

The site has a well-defined and formally documented management structure for managing the impacts. It is the responsibility of every manager, with the support of the environmental professionals, to identify environmental risks that are relevant to the site and determine if a particular activity or service is environmentally significant.

Once identified, it is the responsibility of the manager to highlight the significant aspects to all relevant employees and contractors. The manager is also responsible for monitoring and managing all activities under the Company's control to improve environmental performance.

Managers must complete the appropriate register to identify all activities or services that are relevant to site operations and provide an indication of potential impacts.

Work instructions, job descriptions and procedures exist for critical areas of the Company's activity and have been issued to or made available to personnel responsible for undertaking these tasks.

Further information on the role of staff members and responsibility for odour management is detailed within the site's specific OTMP.

7.2 General Procedures for Training and Competency of Staff

Staff competency and the need for training is continually assessed by site management and supervisors and under all circumstances will be reviewed (at least) annually and formally recorded within the OTMP.

7.3 Odour Management Plan Review

This OMP is a controlled document, and forms part of the OTMP. A comprehensive record of the results of the monitoring and inspection programme contained within this OMP will also form part of the OTMP.

The specification for the periodic review and update of the OMP will be set out within the OTMP, In line with the recommendations of NRW's H4 Odour Management guidance, this takes place on an annual basis, as a minimum.

However, the OMP is intended to be a live document which serves as a reference during daily operations, and as such would be updated on a more frequent basis should the following occur:

- significant changes are made to the plant or operational practices;
- there is a change to the management structure, designation of responsibility or training provision;
- NRW requests that the OMP is updated, in their role as regulator; or
- complaints are received, which on subsequent investigation result in the identification of further control measures or remedial action, in addition to those set out within this OMP.

APPENDIX A

Odour Assessment Form

Background Information			
Person Undertaking Survey (& Position)			
Date		Time	
Description of Wind Strength (i.e. strong, gusty)			
Wind Direction			
Weather (i.e. sunny, overcast)			
Temperature (degree Celsius)			

Survey Results			
Location	**Intensity (1-6) (see below)**	**Persistence (A-E) (see below)**	**Characteristic (see below)**
Northern boundary			
Eastern boundary			
Southern Boundary			
Western Boundary			
Closest Property			
If odour is strong / persistent additional information to be detailed below			

Intensity	
1	No detectable odour
2	Faint odour (barely noticeable)
3	Moderate odour (odour easily detected)
4	Strong odour (bearable but offensive)
5	Very strong odour (instinct to walk way)
6	Extremely strong odour highly likely to cause annoyance (May induce nausea)

Persistence		
A	Occasional	Less than 10% of the time
B	Intermittent	10-30% of the time
C	Frequent	30-50% of the time
D	Persistent	50-75% of the time
E	Constant	>75% of the time

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If during the survey the odour is strong or persistent at any location on the site boundary, the following information requires completion regarding plant operation.		
Waste Delivery	Has waste recently been delivered to site?	
	If yes, were the correct procedures followed?	

APPENDIX B

Odour Complaints Reporting Form

Installation to which complaint relates:		Date recorded:	Ref No:
Name and address of caller:			
Tel No. of caller:			
Location of caller in relation to installation:			
Time and date of complaint:			
Date, time and duration of offending odour:			
Caller's description of odour, e.g. comparison with other odours, strong/weak, continuous, fluctuating:			
Has the caller any other comments about the offending odour?			
Weather conditions (e.g. dry, rain fog, snow):			
Wind strength and direction (e.g. light, steady, strong, gusting):			
Any previous complaints relating to this odour?			
Any other relevant information:			
Potential odour sources that could give rise to the complaint:			
Operating conditions at the time offending odour occurred – e.g. removing waste from bays, deliveries, receipt of potentially odorous wastes, work to temporary capping area, for example			
Follow up Date and time caller contacted:			
Action taken:			
Amendment required to Odour Management Plan:			
Form completed by:		Signed:	

APPENDIX C

Odour Survey Methodology

The exact locations for offsite monitoring are selected based on the prevailing wind direction and proximity to receptors.

The monitoring will be extended to the surrounding locality if odour likely to cause annoyance is detected at the site boundary.

At each location observations shall be made concerning odour intensity, persistence and character, time, date, weather conditions and any 'abnormal' site operating conditions at the time of the survey. Surveys shall be carried out in accordance with the monitoring protocol contained within NRW's H4 Odour Guidance.

The odour assessor should not be subject to significant site odour in the 30-minutes prior to the assessment. This is to ensure that monitors are not suffering from odour fatigue and will be sensitive to site odours. Furthermore the following exclusions shall apply:

- staff members that are regularly exposed to site odours for longer than 30 minutes; and
- any staff members known or suspected of having a very poor sense of smell should not be used for odour monitoring routinely.

The inspections shall be undertaken as follows:

1. The person should walk slowly and breathe normally and begin their assessment at areas of expected low odour concentration, i.e. upwind of the site, and should move to areas of high odour concentration. If odour is detected while walking, the intensity should be recorded as at least 3 (distinct), or higher.
2. If an odour cannot be detected whilst walking, the person should periodically stand still and inhale deeply facing upwind. If odour is then detected, but can only be detected in this manner, the odour 'intensity' should be recorded as 2 (faint).
3. Following detection of any odour of intensity 3 or above at the site boundary during an odour inspection, the following measures will be taken:
    - the olfactory survey will deviate to determine the extent of plume downwind (at or above an intensity level 3) and at potential receptors affected. Contingency measures outlined in Section 5.0 will be followed; and
    - an on-site inspection shall be carried out seeking to trace any observed odour back to source so that the appropriate corrective and/or preventative action can be taken (with regard to Contingency Measures detailed in Section 5.0).

On-site inspections would be undertaken by continuing the olfactory survey methodology onto the site to inspect all potential odour sources.

The Site Manager shall be notified immediately of any detected odours that are considered to have the potential to give rise to significant off-site odour impact (intensity 3 at a receptor location). The contingency measures detailed within Section 5.0 should be followed.

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