WASTE DEPOSIT AND EMPLACEMENT

1.0 INTRODUCTION

This section describes the techniques and measures that will be employed at the installation during waste deposit and emplacement to ensure that the risk of impact on the environment is minimised.

2.0 MANAGEMENT AND OPERATIONAL TECHNIQUES

2.1 Vehicle Movements

It will be the responsibility of the site manager to organise the working area in such a manner to allow the safe movement and discharge of vehicles and plant.

Appropriate signage will be used to direct traffic to the operational area.

2.2 Selection, Inspection and Deposit of Initial Layer of Waste

Only selected waste (comprising municipal solid waste or similar), which excludes large, bulky or sharp items will be used to form the initial lift of waste in each cell immediately above the liner system.

Vehicles delivering selected waste will be required to deposit their load at least 5 metres from the edge of the tipping face.

The selected waste will be subject to a minimal amount of compaction, and a dozer/tracked loading shovel shall be used for this purpose where possible, rather than a steel wheeled, compactor vehicle. The selected waste will be used to form a 'buffer' layer no less than 2 metres in depth.

The waste will be deposited from the access road in front of the mobile landfilling plant to create an operating surface. The leading edge of the tipping face will not be compacted or ramped down, but will be left at angle of repose.

Mobile plant will operate only on the waste surface. Under no circumstances will mobile plant be permitted to operate on the containment system and leachate drainage system.

Daily cover for the top of the first layer of waste will be kept to a minimum and will comprise fine soils, so as not to hinder vehicle movements on the operational area. The face and flanks of the initial layer of waste will not be covered to avoid fouling and clogging of the leachate drainage blanket.

Selection and placement of the first layer of waste will be carried out under the supervision of a suitably trained member of staff, whose role will be to: -

- Visually inspect all waste to be used in the initial layer immediately following discharge;
- Identify any unsuitable materials, which may comprise large bulky or sharp items and ensure that such items are segregated and not placed in the initial waste lift;
- Observe the compaction and spreading activities to ensure that there is no damage to the lining system;
- Advise the site manager in the event of damage being observed; and
- Ensure that waste deposit operations, in the affected area, cease immediately in the event of any damage occurring.

The site manager will be responsible for investigating any damage, and for liaising with the independent Construction Quality Assurance engineer and the Environment Agency to ensure that appropriate remedial action is taken.

2.3 Waste Stability

The following operational techniques, to ensure stability of the waste mass, have been determined in accordance with the Stability Risk Assessment referenced in part B of the Permit, and will be adopted at the site.

Waste Compaction

Waste will be levelled and compacted as soon as possible after discharge at the working area in order to minimise short-term settlement and to enhance stability of the waste mass.

Large Low Density Objects

All large, low density objects will be crushed to ensure that voids do not develop in the landfill.

Height of Tipping Face.

The maximum height of the tipping face after compaction will be 2.5 metres in order to avoid the deposit of uncompacted waste over high unstable faces.

Gradients

The maximum and minimum gradients and maximum heights for the working face and final slopes of the landform will be as specified in the Stability Risk Assessment.

2.4 Prevention of Damage to Barriers, Liners, Leachate and Landfill Gas Management Systems

Action that will be taken during the deposit of waste to prevent damage to the basal barrier, lining system and leachate management system is described in Section 2.2.

The selected waste that is placed on the base of the site will be progressively extended up the sidewalls to protect the sidewall barrier and lining system. The selection, inspection and placement of these materials will be subject to the same procedures as outlined in Section 2.2.

In order to avoid inadvertent damage to leachate and gas extraction and monitoring wells, a layer of granular construction waste, which will act as a buffer against subsequent damage by mobile plant, will be placed around the wells.

2.5 Prevention of the Release of Particulate Matter, Litter and Odour

Measures that will be taken during the deposit of waste to prevent the release to the environment of particulate matter, litter and odour, are described in the following Sections of this management system:-

- Particulate Matter LMS 9 & 11 ;
- Odour LMS 10 ; and
- Litter LMS 12.

2.6 Adverse Weather Conditions

Waste deposit operations in adverse weather conditions can give rise to litter and dust problems.

Control measures and techniques that will be implemented at the installation to minimise the impact of adverse weather conditions, including procedures to monitor meteorological conditions are described in the following sections of this management system:-

- Litter LMS 12;
- Particulate Matter LMS 9 & 11; and
- Meteorological Monitoring LMS 17.

2.7 Selection and Inspection of Final Layer of Waste

In order to prevent damage to the final capping system, only selected waste (comprising municipal solid waste or similar) which excludes large and bulky or sharp items will be used to form the final lift of waste in each cell immediately below the final capping layer. Bulky items which may give rise to void formation will not be used in the final lift of waste

and will, in any case, be crushed as far as is possible in accordance with 2.11.

2.8 Handling and Compaction Plant

In order to ensure that waste delivered to the installation can be handled, compacted and covered as required, the landfill will typically be equipped with the following items of mobile plant as appropriate to the waste deposit and emplacement operations:

- Wheeled compactor;
- Tracked bulldozer or loading shovel;
- Wheeled tractor.

All operatives will undergo training appropriate to their role and the equipment to be used to ensure effective handling, compaction and covering procedures are adopted.

2.9 General Waste Discharge and Emplacement Procedure

Wastes accepted for disposal will be directed to the appropriate landfill cell and working area by a series of signs. Each landfill cell will be subdivided into smaller working areas.

On instructions from operatives in the disposal area, and where possible, waste delivery vehicles will reverse to the disposal face.

The deposited load will be subjected to a thorough inspection by the site plant operatives as the waste is spread, to ensure that the waste is permitted for disposal. Any unauthorised loads will be dealt with as described in LMS 02.

After placement of the initial layer of waste, subsequent lifts will be deposited in layers not exceeding 2.5 metres in height. Compaction will be achieved by spreading the waste in thin layers and by repeated passes of the landfill compactor. The surface of the waste will be graded to shed surface water and to prevent “ponding”.

Waste may either be deposited at the base of the working face and pushed up in thin layers, or deposited on top of the working face and pushed down in thin layers. This latter method is the preferred method as it allows difficult waste to be deposited ahead of the working face.

Suitable edge protection, i.e. bump banks, will be used if the edge of a cell, ramp or other area presents a hazard to vehicles and plant.

2.10 Handling and Disposal of Difficult Waste

All difficult waste loads will be directed to the working face for their disposal.

All difficult waste will be deposited under the working face in such a manner that it is completely covered by general waste i.e. household, commercial and other non difficult waste, as soon as practical following deposit.

The site manager or his representative will supervise the unloading and burial procedure dependent upon the nature of the waste.

2.11 Handling and Disposal of Bulky Low Density Waste

All bulky low-density items will be crushed or flattened prior to burial. This will avoid the presence of sub surface cavities which may give rise to unstable ground conditions during filling and potential differential settlement of the restored surface which could lead to stresses developing in the landfill cap.

2.12 Handling and Disposal of Malodorous Waste

Prior to the regular acceptance of any potentially malodorous waste at the installation, a trial load will be accepted in order to develop appropriate procedures to ensure that regular acceptance of the waste will not give rise to unacceptable odour releases. Following receipt of the trial load, specific handling procedures will be developed and requirements for the containment and pre-treatment of the waste agreed with the producer and carrier. This procedure will ensure that wastes that will give rise to unacceptable odours are prevented from being accepted at the installation.

Any malodorous waste accepted at the landfill will be subject to prior notification to ensure the necessary procedures are in place to ensure immediate burial and cover by other non-odorous materials. Malodorous waste will be placed within the body of the site so that it is located no less than 2 metres from the surface and flanks of the landfill by the end of the working day.

Wastes that may be potentially odorous include commercial or industrial wastes containing readily degradable organic components.

Specific techniques that will be implemented at the installation to control and monitor odours are contained in LMS 10.

2.13 Handling and Disposal of Dusty Waste

Dusty waste will only be accepted at the installation if it has been conditioned with water or otherwise contained to ensure that it does not give rise to an unacceptable release of dust upon discharge.

Dusty waste will be handled with care and immediately buried and covered with other wastes.

Specific techniques that will be implemented at the installation to control and monitor dust emissions are contained in LMS 9 & 11.

2.14 Handling and Disposal of Clinical Waste

The installation will not accept infectious clinical waste. Accordingly, the only clinical waste that may be accepted for disposal at the installation (subject to the permit) will be non-infectious waste comprising items used to dispose of urine, faeces and other bodily secretions assessed as not being infectious. This will include disposable bedpans, incontinence pads, stoma bags and urine containers.

Non infectious clinical waste will be delivered to the installation in small dedicated vehicles, and will be contained in yellow bags which may be marked 'clinical waste'.

Clinical waste will be treated as a difficult waste, and will be buried under the working face.

Care will be taken to ensure that no other category of clinical waste is disposed of at the installation. Specifically, inspections will be made for evidence of labels stating 'incineration' or 'infectious material' and any such wastes will be removed from the filling area and stored in secure containers pending its removal from site to a suitably licensed/permitted facility. Any incidences of such wastes being discovered on the site will be recorded in the installation log.

2.15 Compaction

All deposited waste will be suitably compacted. Deposition will only take place at a rate at which the compactor can adequately cope. Each layer of waste will be compacted by 3-4 passes of the compaction equipment, to achieve a layer of waste thickness no more than 200mm thick by the second pass of the compactor.

2.16 Replacement Plant

In the event that the compactor becomes inoperative, a suitable alternative vehicle will be used. In the event that an alternative vehicle is not available, the deposition of waste may be suspended until compaction can be resumed unless waste can be deposited across the working area for subsequent compaction.

2.17 Communication

The operatives at the active landfilling areas will be in direct radio contact with the installation control office. This will enable instructions to be given regarding particular loads of waste and to ensure appropriate precautions are taken during the disposal process.

2.18 Records

The installation log will be used to record any incidents that occur during the waste discharge and emplacement process, including action taken in relation to unauthorised waste.

3.0 APPLICATION OF DAILY AND INTERMEDIATE COVER

Daily Cover

By the end of the working day a quantity of cover will be applied to the top, working flanks and working faces of the operational area (except the initial layer), sufficient to ensure that:-

- Windblown litter and debris are minimised;
- Vermin is inhibited from entering the waste mass;
- Scavenging is inhibited;
- Perched leachate problems are avoided; and
- The aesthetics of the site are addressed particularly with regard to the depth of landfilling, i.e. deeper less visually intrusive areas will need less cover than higher areas in direct view of surrounding land.

Daily cover will be progressively applied to the waste surface. This will be derived from suitable imported or on site materials such as:

- Inert materials including soils and hardcore;
- Compost;
- Compost rejects;
- Synthetic fabrics;
- Other suitable materials with the agreement of EA.

A stockpile of cover materials will be maintained, as necessary, in the vicinity of the working face, in order to ensure that exposed waste can be covered at the end of each working day.

In the event that synthetic fabrics, such as geotextiles, are used, they will be adequately secured, particularly at joints and edges to prevent the underlying waste being exposed due to the action of the wind or traversing vehicles. Manufacturer's product data sheets will be kept as a site record, available for inspection by the Agency. When used, synthetic fibres will be inspected twice daily to confirm their effectiveness and suitability for continued use. The review will include the effectiveness of other environmental control measures such as fly spraying and fly prevention. If the use of the fabrics is proven to be inappropriate their use will be suspended, and placement practice reviewed.

Intermediate Cover

In areas where landfilling operations will be temporarily suspended before final waste levels have been achieved, a layer of intermediate cover material will be applied.

Prior to placement of any subsequent layers of waste, previously placed inert cover will be removed progressively for re-use at a later date, to prevent perching of leachate and landfill gases.

4.0 TEMPORARY CAPPING

Due to the nature of the landform to be created, it will be necessary to leave parts of the filling area uncapped until landfilling has progressed sufficiently in neighbouring areas to enable final levels to be achieved. Under these circumstances temporary capping of the exposed wastes will be undertaken to minimise leachate generation in the cells concerned.

Temporary capping will be installed at gradients sufficient to shed surface water from the landfill and to prevent water from ponding on the operational area. Care will be taken to prevent such surface water from infiltrating the landfilled wastes and to ensure that it is conducted to the surface water drainage system.

The temporary cap will be removed before waste disposal is reactivated in order to prevent perching of leachate or the development of failure planes within the waste mass.

5.0 CELL SIZING AND OPERATIONAL AREA

Water balance calculations have been used to demonstrate that, at the projected rate of filling, the rate of leachate generation will not affect the filling operations.

Within each filling area, the active operational area will be of sufficient size to accommodate the installation's mobile plant and delivery vehicles without giving rise to potentially dangerous situations, but will be contained in order to minimise the area of exposed waste which could give rise to litter, odour, dust and vermin infestation.