WPS/V1:

WORKING PLAN GUIDANCE AND SPECIFICATIONS

Volume 1: Waste Management Licences

Edition 1

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This document provides detailed guidance and specifications for the preparation of working plans.

It is issued to be used by applicants for waste management licences, to support and augment the guidance supplied with the Environment Agency Licence Application Forms, specifically WM103: Background notes - Preparing a working plan.

It is also issued to be used by Agency officers dealing with applications, and is provided to be used in conjunction with the Library of Licence Conditions (Volume 1: Waste Management Licences), to assess the content and quality of working plans and to prepare appropriate licence conditions.

The guidance and Specifications are subject to review and revision. Please consult the Agency officer dealing with your application on their current status and the implications of any subsequent revisions.

PREPARATION OF A WORKING PLAN

To support the application for a waste management licence it is necessary to prepare a working plan. The plan should describe how you intend to prepare, develop, operate and where necessary restore the site or plant. The Environment Agency is aware that the working plan is a 'living' document and will need to be reviewed and amended as the site evolves. For example, as a landfill site is developed from cell to cell, the working plan may evolve to take into account any change or technical improvement designed to protect human health, the environment, or local amenity.

So that the plan contains the relevant information required by the Environment Agency to process an application, it is important that it complies with the content and format described below. A good working plan will help avoid delay in the application process. It will also ensure that any licence issued contains conditions appropriate to your operation. This can give more operational flexibility by avoiding over-prescriptive requirements.

Pre-application meeting:

It is essential that you attend a pre-application meeting with your licensing officer so that you are fully aware of the sort of information that needs to be included in your working plan.

Content of a working plan

A working plan will include plans and drawings to appropriate scales, technical descriptions and specifications, and documented procedures and recording systems. It will also include or reference supporting information, including risk assessments and detailed method statements.

The information required is detailed in the Working Plan Specifications.

How to use this guidance

On the following pages you will find a series of Working Plan Specifications. Depending on the type of information it covers, each Specification has been placed into one of seven broad sections:

Section 1: General considerations
Section 2: Site engineering for pollution prevention and control
Section 3: Site infrastructure
Section 4: Site operations
Section 5: Pollution control, monitoring and reporting
Section 6: Amenity management and monitoring
Section 7: Site records

Each section is headed by generic guidance notes on its Specifications. More detailed or specific guidance is given in each Specification.

A list of definitions of relevant technical terms is given before Section 1. These will be used in the licence conditions and should also be used in the working plan.

You will see that each specification has a similar layout:

- **A reference number and title** e.g. WP/1.110 Specified Operations
- **Facility Type**
  concerns the type of operations or site to which the specification should be applied
- **Risk Assessment** (not all specifications)
  outlines the risks that should be assessed in developing the provisions that will be detailed in the working plan in accordance with the **Description**
- **Description**
  details the written information and drawings required to be provided in that section of the working plan to meet the specification
- **References**
  lists other relevant published guidance

Now consider the proposed waste management activities you will be operating on your site or plant. Referring to the **Facility Type** and **Risk Assessment** for each specification will help you decide which specifications apply to your operations, and the risks that will need to be assessed in support of your application and working plan. Some specifications concern all sites (see the ticks in the table below), whilst others are more specific to certain operations. Use the table below to help identify the specifications that will be relevant for your activities. If you have difficulty in assigning your operations, you should seek advice from your Licensing Officer.

Having decided the specifications that are relevant to your site or plant, now consider the **Description** of each specification. The sort of written information you will need to provide is listed, but if you are uncertain about the degree of detail required contact your Licensing Officer. For further information you may want to refer to the published material listed in the **References**.

Format of the working plan

It is recommended that the working plan is presented in a loose leaf format and that each page and paragraph is numbered.

Sections should be arranged and numbered in sequence, in order that they may be clearly and unambiguously referenced in the relevant licence conditions. (The reference numbers of the following Specifications are not intended and should not be used to number the sections in the working plan.)

In addition, a contents list should be prepared for the text and plans. This layout will enable clear and unambiguous referencing to the appropriate conditions in the licence.

The details given in the working plan should be described clearly and unambiguously, so that the requirements and responsibilities can be complied with effectively and, where necessary, enforced.

OBLIGATIONS CONCERNING YOUR WORKING PLAN

It is important to realise that although the working plan is the applicant's own document, it will become an operational part of any licence issued. The Agency must be notified and approve of any proposed changes to the working plan BEFORE they are implemented.

Section	Applicable working plan specifications
1: General considerations	
WP/1.110 Specified waste management operations	√
WP/1.120 Permitted wastes	√
WP/1.130 Hours of operation	√
WP/1.131 Duration of activities - groundwater protection	
2: Site engineering for pollution prevention and control	
WP/2.210 Engineered site surface and drainage systems	
WP/2.230 Engineered containment for storage of wastes in liquid, sludge or powder form in fixed tanks	
WP/2.232 Engineered containment for wastes in liquid, sludge or powder form in drums and other mobile tanks and containers	
WP/2.320 Engineered containment for solid and liquid wastes (leachate and landfill gas generating)	
WP/2.330 Leachate management systems	
WP/2.340 Landfill gas management systems	
WP/2.350 Engineered surface water management systems (landfill sites)	
WP/2.360 Installation, maintenance and protection of final capping	
3: Site infrastructure	
WP/3.500 Site security	√
4: Site operations	
WP/4.140 Control of mud and debris	√
WP/4.151 Potentially polluting leaks and spillages of waste	√
WP/4.153 Fires on site	√
WP/4.210 Waste acceptance and control systems and procedures	√
WP/4.220 Waste sampling and testing	
WP/4.230 Waste quantity measurement systems	√
WP/4.410 Waste treatment processes	
WP/4.520 Waste discharge and emplacement	
WP/4.521 Use of daily cover and intermediate cover	
WP/4.701 Asbestos bearing wastes	
WP/4.702 Waste oils and oil bearing wastes	
WP/4.703 Fragmentiser/shredder wastes	
WP/4.704 Liquid CFC bearing wastes	
WP/4.705 PCB bearing wastes	
WP/4.706 Clinical wastes	
WP/4.708 Batteries	
5: Pollution control, monitoring and reporting	
WP/5.100 Landfill gas monitoring and reporting within the waste or engineered containment	
WP/5.101 Landfill gas monitoring and reporting external to the waste or engineered containment	
WP/5.200 Leachate monitoring and reporting	
WP/5.400 Groundwater monitoring and reporting systems	
WP/5.500 Surface water quality monitoring and reporting	
WP/5.600 Monitoring and recording of meteorological conditions	
6: Amenity control and monitoring	
WP/6.010 Control, monitoring and reporting of dusts, fibres and particulates	
WP/6.020 Control of odours	
WP/6.030 Control and monitoring of noise	
WP/6.040 Control of pests	
WP/6.041 Control of birds and other scavengers	
WP/6.050 Control of litter	
7: Maintaining and submitting records	
WP/7.100 Security and availability of records	√
WP/7.200 Recording special waste deposits	

Note √= applies to all applications

Risk Assessment

You will be required to provide a written risk assessment in support of your working plan. Where an environmental statement has been produced as part of the planning application and is enclosed with the licence application (see Form WM100, question 4.5), this may provide the necessary risk assessment. If not, then you will have to produce a separate or additional risk assessment.

The risk assessment does not form part of the working plan but should be referenced in the working plan as a supporting document.

Risk assessment and risk management are well-established disciplines with generally recognised concepts and procedures. However, if you do not have expert knowledge in this area it is advisable to seek assistance from an appropriately qualified consultant. Detailed risk assessment methods applicable to waste management licensing issues are currently being addressed by the Agency. General guidance on risk assessment and risk management for environmental protection can be found in: 'A Guide to Risk Assessment and Risk Management for Environmental Protection' (DoE; 1995) (HMSO: ISBN 0 11 753091 3).

As used in these Specifications, **risk assessment** is a process to estimate and evaluate the potential hazards and risks associated with a particular site. The hazards are those associated with the particular waste management activities which will be carried out on the site. The risks are those of pollution of the environment, including harm to human health or serious detriment to the local amenity, outside the boundary of the site and its containment. The estimation is of the magnitude of the outcome or consequences of those hazards, taking account of the probability, or likelihood, of their occurrence. The evaluation is of the significance of the estimated risks for those persons or parts of the environment affected (the 'targets').

The risk assessment you provide in support of your application and working plan proposals should therefore include the following elements, using where possible, recognised quantified or semi-quantified methods and techniques:

- identification of potential hazards to human health or the environment
- identification and assessment of the degree of hazard presented, that is, the potential pathways and targets for the identified hazards
- identification and assessment of the consequences or adverse effects on the potential targets resulting from exposure to the identified hazards
- estimation of the identified risks, that is, of the probabilities or likelihoods of those hazards and their adverse effects occurring
- evaluation of those estimated risks against specified criteria.

Risk management is the process whereby decisions are made and implemented to either accept known or assessed risks or to provide engineered and/or operational controls (risk management provisions) to prevent or reduce those risks. Risk management provisions will be required by the relevant licence conditions and will be specified in the working plan; they may include:

- provision to prevent the identified hazards
- provision to contain and control the identified hazards
- systems to monitor security of the containment and control provisions
- actions to minimise, mitigate and remedy the consequences if the containment and control provisions are compromised.

Since the risk assessment will take account of the mitigating effect of the specified risk management provisions (for instance, the containment of leachates by the engineered landfill containment systems, which will reduce the risks of leachate generating wastes contaminating groundwater), the process of risk assessment may go through more than one cycle, as the design is developed.

The scope of the risk assessments that should be provided in support of your application and working plan proposals is defined in the relevant guidance notes of the specification.

The definitions of **risk assessment** and its associated terminology as they will be used in the licence conditions are given in the listed **Definitions of Terms** following these general guidance notes.

You are given further guidance on the framework within which the risk assessment should be developed in the Generic Guidance on the Section 1 Specifications. This guidance is developed more specifically in the other sections and in relevant Specifications.

If you require further guidance consult your Licensing Officer.

What happens if your working plan does not contain enough information

If the working plan does not cover a particular subject area or covers it in insufficient detail, we will refer you back to the working plan specification and discuss what further information you need to submit.

It may be necessary to extend the statutory 4 month application period if
- aspects of the working plan continue to be inadequate, or
- you fail to submit a revised working plan.

This will allow us to set licence conditions incorporating the detail which would otherwise be provided in the working plan.

This type of condition may hinder your operational flexibility. In addition, you will probably need to formally apply to modify licence conditions when you want to change these aspects of your operations.

What happens to your working plan after a licence is issued

Where the working plan meets the required level of specification, it will be specifically referred to in the relevant licence conditions. These parts of the working plan provide detailed, site-specific and enforceable standards, and are effectively part of the licence. As a consequence, they may be amended with our written consent without going through a formal modification procedure. This gives operational flexibility to the licence holder.

Can changes be made to the working plan

After a licence has been issued you may want to change parts of the working plan as your site/plant develops. If so, you should contact your Agency office to discuss any proposed changes at the earliest opportunity.

If the section you want to change is referenced to a particular licence condition you must have written approval from us before you implement the proposed change. Such approval may be dependent on the submission of an assessment of the risk arising from the proposed changes.

If the proposed change is significant you might need to formally apply to modify the conditions of your licence. For example, if the proposed changes have the potential to increase the risk of pollution of the environment or harm to human health.

The Agency must be informed about the addition of further information in the working plan. Such extra information may be permitted without the Agency's written consent.

DEFINITIONS OF TERMS

Terms used in the working plan should be consistent with these listed definitions and other terms used in the licence conditions.

The Site:	The land, structures, plant and equipment to which the licence relates.
The Holder:	The Licence Holder specified in the licence or other person to whom the licence has been transferred in accordance with section 40 of the 1990 Act and section 120 of the 1995 Act.
The operator:	A person who is in occupation of the site and has responsibility for carrying out day to day activities at the site.
Received:	For waste being delivered to the site, shall mean delivered to the site and undergoing the waste acceptance procedures specified in the working plan, including storage of those wastes during those procedures prior to acceptance of the waste.
Accepted:	For waste being delivered to the site, shall mean accepted as waste input to the site for storage and/or processing and/or disposal under the specified waste management operations.
Preparatory works:	Works required prior to the carrying out of the activities authorised by this licence
Engineered:	Means carried out and completed using the relevant engineering process specified in the working plan.
Engineering:	For engineering works, means the relevant process of design, construction or installation, quality assurance or validation or commissioning specified in the working plan.
Engineer:	For engineering works, means a person who works in the relevant branch of engineering, as a qualified professional.
Engineering survey:	A survey carried out in accordance with recognised or approved standards by a suitably qualified competent person.
Maintenance:	For engineering maintenance, means the process of inspection, testing, repair of the relevant engineering works.
Immediately	For carrying out of actions under the licence conditions and working plan, shall mean without delay and within a reasonable time, taking into account any more immediate direct action necessary to prevent or minimise risk to human health and the environment. For carrying out notifications to the Agency, shall also mean by the fastest effective means available (for example, telephone) confirmed in writing within 1 working day (or such other time as may be agreed by the Agency).
Waste:	Controlled waste as defined in section 75(4) of the 1990 Act and the Controlled Waste Regulations 1992 or any statutory provisions or regulations amending or replacing them.

Clinical waste: As defined in regulation 1(2) of the Controlled Waste Regulations 1992 or any statutory provisions amending or replacing them.

Special waste: As defined by regulation 2 of the Special Waste Regulations 1996 or any statutory provisions or regulations amending or replacing them.

Risk assessment: The systematic identification, analysis, estimation and evaluation within a defined **scope** of the defined **risks** of a particular activity, operation, process or design, carried out and reported by suitably qualified or competent persons, using recognised quantified or semi-quantified methods and techniques. Unless otherwise agreed by the Agency within the working plan, a risk assessment shall include and record the following:

- definition of the **hazards** associated with an activity, operation, process or design;
- assessment of the **probability** of those **hazards** occurring;
- determination of the potential **consequences** of those hazards for defined **environmental targets or receptors**, taking into account defined **release pathways** and defined protective measures
- evaluation of the potential **magnitude** of those consequences and the **probability** of their occurrence.

Scope of risk assessment: The boundaries of the **risk assessment** and the **risks** to be assessed within those boundaries, as defined in the conditions and working plan or otherwise agreed by the Agency.

Risk: A combination of the **probability** and **consequences** of occurrence of a defined **hazard**.

Hazard: A property or situation that in particular circumstances could lead to harm.

Probability: The quantified expression of chance, denoted either as:

the ratio or percentage of the occurrence of a particular event as one among a number of possible events; or as

the frequency of occurrence of a particular event in a given period of time.

Consequences: For **risk assessments** carried out in support of the working plan, the adverse effects of harm as a result of realising a **hazard** which cause the quality of human health (other than health and safety of site staff or visitors to the site covered under the Health and Safety at Work Act 1974) or the environment to be impaired in the short or longer term.

Release pathways: For **risk assessments** carried out in support of the working plan, the routes by which defined **hazards** may potentially realise their **consequences**, defined in terms of releases or emissions from the site that go beyond the site containment or boundary via one or more of the following routes, either directly or indirectly: **Land; Groundwater; Surface water; Atmosphere.**

Environmental targets or receptors:	For **risk assessments** carried out in support of the working plan, shall mean identified human and environmental populations or components, as specified in the working plan or otherwise agreed by the Agency in the working plan.
Groundwater:	Any water contained in underground strata.
Surface water:	Any lake, pond, river or watercourse whether natural or artificial.

SECTION 1: SITE DESCRIPTION AND CHARACTERISATION OF RISK SOURCE

Scope:

The Specifications in this section cover the descriptions and characterisations of the source of the risks arising from the site; that is, the waste management operations that will be authorised by the licence (Specification WP/1.110), the waste types and quantities that will be permitted to be accepted on the site and subjected to those operations (Specification WP/1.120), and relevant necessary limits on operational hours (Specification WP/1.130) (the operational hours should be consistent with the relevant planning requirements).

Generic Guidance on the Section 1 Specifications:

Risk Assessment:

The applicant should be required to provide a written risk assessment in support of the proposals described in the working plan. Where an environmental statement has been produced as part of the planning application and has been enclosed with the licence application (see Form WM100, question 4.5), this may provide the necessary risk assessment. If not, then the applicant should be required to produce a separate or additional risk assessment. The risk assessment should not be included in the working plan itself, but should be specifically referenced in the working plan as a supporting document.

The risk assessment should be specifically discussed with the Agency officer dealing with the application at an early stage.

1. Framework of Risk Assessment:

The risk assessment should be developed within the following framework, starting from the source of risks to human health or the environment and following through the risk management provisions that are proposed to contain and control those risks, the monitoring of those containment and control provisions, and the actions that will be taken to minimise, mitigate and remedy the consequences should those containment and control provisions be compromised.

The applicant should support their application and the detailed proposals in the working plan with a risk assessment covering the source of the hazards and the relevant risk management provisions proposed. The following is a suggested framework for the links between the risk assessment and the risk management provisions covered by the working plan:

Link between Risk Assessment and Risk Management	Risk Management Provisions	Relevant Specifications
Definition of Source of Hazards: These sections of the working plan taken together define the possible hazards to human health and the environment that may be posed under the licensed activities: a) by specifying the nature of the waste management operations that will be carried out, with reference to the range and nature of the hazards to human health and the environment posed by those operations; and b) by specifying the types and quantities of wastes that may be taken, and by specifying and limiting the hazardous properties that those wastes may possess. The specified waste management operations and waste types and quantities applied for should be comprehensively described and given full consideration in the risk assessment.	**Operations** **Waste Types and Quantities**	WP/1.110: Specified Waste Management Operations. WP/1.120: Permitted Wastes.
Containment and Control: The relevant Specifications and corresponding sections of the working plan address the need to adequately contain and control the identified hazards to human health and the environment posed by the specified waste management operations and by the permitted waste types and quantities. The minimum standards of engineered and procedural containment and control that are required will be determined on the basis of the relevant risk assessments. For some hazards, engineered containment may not be a reasonable or practicable requirement. There should always be a specified degree of procedural containment and control for	**Engineered containment and control:** 1. Design 2. Construction 3. Maintenance 4. Construction Quality Assurance **Procedural containment and control:** 1. Waste acceptance and control procedures.	Section 2: Site Engineering for Pollution Prevention. Section 4: Site Operations; and Section 6: Amenity

Link between Risk Assessment and Risk Management	Risk Management Provisions	Relevant Specifications
identified hazards posing non-negligible risks.	2. Prevention of leaks and spillages 3. Prevention of emissions and releases.	Management and Monitoring.
Monitoring: The relevant Specifications and corresponding sections of the working plan address the need to monitor the performance of the specified containment and control provisions, and specified effects of the site on the environment. The minimum standards of engineered and procedural monitoring that should be required will be specified or else determined from the relevant risk assessments. For some hazards, engineered monitoring systems (eg. boreholes, sampling systems) may not be a reasonable or practicable requirement. There should always be a specified degree of procedural monitoring for identified hazards posing non-negligible risks to human health or the environment.	**Engineered monitoring systems:** 1. Design 2. Construction 3. Maintenance **Monitoring programmes:** 1. Schedules 2. Determinands 3. Methods 4. Triggers 5. Records 6. Quality assurance	Section 5: Pollution Control, Monitoring and Reporting. Section 5: Pollution Control, Monitoring and Reporting; and Section 6: Amenity Management and Monitoring.
Minimisation, Mitigation and Remediation: The relevant Specifications and corresponding sections of the working plan address the need for effective actions to be planned and executed when the relevant monitoring results exceed specified values, or when the relevant containment and control provisions are compromised such that there is an immediate need for action to minimise and mitigate risk to human health or the environment.	**Action plans**	Section 4: Site Operations; and Section 5: Pollution Control, Monitoring and Reporting; and Section 6: Amenity Management and Monitoring.

2. Risk Assessment: Hazards due to Type of Waste Operations:

The 'source' definition determines the minimum requirements for the type and scope of risk assessments which the applicant should provide as a necessary support for their application and the proposals specified in detail in the working plan.

The risk assessment should be based upon hazard checklists, or an equivalent methodology, with analysis and assessment of each potential or reasonable possible risk scenario with adverse consequences to the environment or human health outside the site containment and its boundary.

The risk assessment should take account of the inherent hazards associated with the waste types proposed, due to their constituents or their form, and the quantities that will be on site, as detailed in the working plan in accordance with Specification WP/1.120: Waste Types and Quantities.

Where a restriction on specified waste operations is proposed by the Agency and is formally disputed by the applicant on a risk basis, the identified hazards under dispute should be risk assessed using an appropriate and peer reviewed risk assessment methodology, using an Agency-approved or otherwise recognised risk assessment methodology.

3. Risk Assessment: Hazards due to Form and Type of Wastes:

Waste types will present particular types of hazards depending upon:

1. their constituents; ie. whether they are Special or non-Special wastes; and, if they are Special wastes, their particular hazardous properties; and

2. their physical form; ie. whether they are solid (wet or dry), sludge or liquid; and, if solid, whether they consist of or contain significant quantities of loose mixtures, powders, dusts, fibres or particulates.

The hazards associated with particular waste types and forms will require that appropriate environmental protection measures are provided for the proposed waste operations.

The following table may be used to aid identification of the risk management (environmental protection) measures that should be considered when licensing waste operations handling particular forms and types of waste:

Waste Form and Type	Associated Hazards	Primary Potential Targets	Measures Required (unless otherwise justified)	Refer to Specifications
Non-Special wastes: Solid, dry, consisting of or including powders, dusts, fibres or particulates.	Aerial emissions (Where kept in open, should also be regarded as wet wastes, with associated hazards and required measures)	Humans; Habitats; Amenity.	Engineered containment; Operational procedures for prevention and control (and monitoring).	Section 2 Section 6

Waste Form and Type	Associated Hazards	Primary Potential Targets	Measures Required (unless otherwise justified)	Refer to Specifications
Non-Special wastes: Solid, wet wastes; Sludges; Liquids.	Leachate; Contaminated water runoff; Mud.	Surface water; groundwater; local amenity.	Engineered containment. Operational procedures for prevention, control and maintenance.	Section 2 Section 4
Special wastes: Solid, dry, consisting of or including powders, dusts, fibres or particulates.	Aerial emissions (Where kept in open, should also be regarded as wet wastes, with associated hazards and required measures)	Humans; Habitats; Amenity.	Engineered containment. Operational procedures for prevention and control (and monitoring).	Section 2 Section 6
Special wastes: Solid, wet wastes; Sludges; Liquids.	Leachate; Contaminated water runoff.	Surface water; groundwater; land.	Engineered containment; Operational procedures for prevention, control and maintenance. Engineered pollution monitoring and monitoring programme.	Section 2 Section 4 Section 5
Non-permitted waste forms and types	Hazards associated with those waste forms and types	Potential targets of those hazards	Operational controls	LC/4.210: Waste Acceptance Procedures; LC/4.220: Waste Sampling and Testing

Where the proposed waste types may include special wastes (as defined under r.2 of the Special Waste Regulations 1996), the hazards of such waste types should be considered in terms of the following hazardous properties (as coded), as may characterise the particular waste types proposed:

Hazard Codes (as defined in Part II of Schedule 2 of The Special Waste Regulations 1996):

Hazard Code	Hazardous Properties
H1	Explosive
H2	Oxidising
H3-A	Highly Flammable
H3-B	Flammable
H4	Irritant
H5	Harmful
H6	Toxic
H7	Carcinogenic
H8	Corrosive
H9	Infectious
H10	Teratogenic
H11	Mutagenic
H12	Substances or preparations which release toxic or very toxic gases in contact with water, air or an acid.
H13	Substances and preparations capable by any means, after disposal, of yielding another substance, eg. a leachate, which possess any of the characteristics listed above.
H14	Ecotoxic

WP/1.110: SPECIFIED WASTE MANAGEMENT OPERATIONS

FACILITY TYPE: All sites

USE:

The working plan section(s) drafted using this template, taken in combination with those drafted using WP/1.120: Permitted Wastes, define the permitted operations on the site and the permitted waste types, and so define the 'source' of risks posed by the site to the environment and human health.. This section is therefore necessary for all working plans.

RISK ASSESSMENT:

The waste management operations that will take place on the site are the source of the risks to the environment that will be posed by the site. These risks will be defined at source by the hazardous characteristics of the forms and types of wastes which will be accepted on the site and subjected to the various waste management operations.

DESCRIPTION:

This section of the working plan should clearly describe the all the waste management operations that are to be carried out under the licence. These should be described using the terms given in the right hand column in Table WP/1.110 below.

The left hand column of Table WP/1.110 gives the classification of those operations under the broad categories of 'Keeping', 'Treating', 'Disposal to Land' and 'Disposal other than to land'. This will assist the applicant in identifying the correct classification of the proposed facilities within the Waste Management Licensing (Fees and Charges) Scheme, and the relevant application fee and subsistence charges that will be applied. The activities and processes specified in the working plan must lie within and be consistent with the broad categories of keeping, treating and/or disposing which will be permitted by the licence frontsheet.

Waste management activities should not be included where they are either excluded from licensing under the terms of r.16 or exempt from licensing under the terms of r.17 of the Waste Management Licensing Regulations 1994 (& amendments). These should be registered with the Agency in accordance with the requirements of r.18.

Where it is necessary for the specified waste management operations to be carried out in accordance with defined systems and procedures, which are subject to documented quality control and assurance (QC/QA), the relevant requirements will be specified under Licence Condition WP/4.410: Waste Treatment Processes.

The following information should be given under this section for each of the specified waste management operations, as appropriate:

1. **Location of specified waste management operation within the site:**

   This section of the working plan should include or be specifically referenced to a scale plan of the site showing the location of designated areas or facilities within which the specified waste management operations shall be carried out. The overriding principle is that waste management operations will only be carried out in areas or facilities which are

provided with the necessary pollution prevention and control systems described under the other relevant specifications.

Provided that this requirement is satisfied, the presumption will be for flexibility in location consistent with the proper management of identified environmental risks; for example, as in the following:

in operations which fall under the activities of 'keeping', a storage skip may be located anywhere within an appropriate paved and drained area (see WP/2.210);

in operations which fall under the activities of 'treatment', a waste mixing/treatment process carried out using fixed plant may be required to be located within specific facility with specific environmental emission controls;

in operations which fall under the activities of 'disposal to land', waste deposits may only take place within defined phases and cells within defined engineered containment provisions.

Where necessary, the Agency may justify and require restrictions on location within the licensed site boundary on the basis of the relevant and necessary pollution prevention and control provisions. These restrictions will be defined with reference to the relevant site engineering and pollution control systems which will be provided. These systems will be assessed with regard to their ability to prevent, control and minimise the identified risks to the environment, human health and the local amenity which may reasonably and justifiably be considered to be associated with the proposed waste management operations.

2. Waste types that will be subject to each waste management operation:

These should be described consistent with the waste types that are intended to be accepted on the site, and should take into account the hazardous properties of those wastes (see WP/1.120), excluding forms or types of waste which have the potential to cause unacceptable risks to the environment if subjected to the particular waste management operations.

The Agency may justify and require restrictions on otherwise permitted waste types which may be subjected to the specified operation, in order to prevent pollution of the environment, harm to human health or serious detriment to the local amenity; eg. restrictions on flammable wastes, reactive wastes.

3. Maximum capacity of operation:

The maximum capacity as appropriate to the operation of the designated area or facility; eg.

1. Storage operations - maximum capacity may be specified in terms of the following, as appropriate:

   maximum volume (cubic metres) - this may cover storage in container of known volume of units, such as batteries;

   maximum storage boundaries (maximum height in metres within defined storage boundaries) - specify areas rather than heights except where height limits are necessary for specified environmental reasons;

maximum weight (tonnes);

maximum numbers of units - drums and other containers;

maximum stacking heights - this may be HSWA 1974 issue rather than licenseable requirement;

2. Treatment operations - maximum capacity may be specified in terms of the maximum operational capacity or throughput (tonnes/day, etc.).

3. Disposal - maximum capacity may be specified in terms of maximum rate of disposal (tonnes/day, tonnes/month, tonnes/year, etc.)

4. 'Operational storage' for waste treatment and disposal operations (see Table WP/1.110) - maximum capacity for storage of permitted waste types in dedicated areas immediate to the specified waste management operations, so as to provide a reasonable working capacity for storage inputs to and outputs from the specified waste management operations, may be specified in terms equivalent to those under 1) above.

Table WP/1.110: Waste Management Operations other than Metal Recycling

SPECIFIED WASTE MANAGEMENT OPERATIONS - Classifications:	Guidance on the types of waste operations which fall within the 'Specified Waste Management Operations' classifications, and which should therefore be described in the working plan:
KEEPING **Includes associated delivery and despatch operations.**	**Includes associated delivery and despatch operations.**
Storage	Storage without any treatment that involves any of the operations under the classifications of 'Treating' and 'Disposal to Land' and 'Disposal other than to Land'). Storage which is an inherent and integral part of the 'Treatment', 'Disposal to Land' or 'Disposal other than to Land' specified waste management operations should be classed as falling within those classifications as 'operational storage'. This 'operational storage' will involve storage of permitted waste types in dedicated areas immediate to the specified waste management operations, so as to provide a reasonable working capacity for storage inputs to and outputs from the specified waste management operations. 'Operational storage' should not include largescale or longterm storage. Where 'operational storage' is described as an integral part of a specified waste operation in the working plan, the maximum working capacity and storage duration should be specified and justified.

SPECIFIED WASTE MANAGEMENT OPERATIONS - Classifications:	Guidance on the types of waste operations which fall within the 'Specified Waste Management Operations' classifications, and which should therefore be described in the working plan:
Bulking of the same waste types	This does not include mixing of different waste types or wastes containing potentially incompatible components. This may include compaction and baling of the same waste types where the wastes are dry and the compaction or baling takes place as an integral part of bulking (see above) and does not give rise to any emissions or exudates from the waste.
Segregation of unmixed wastes	This does not include sorting and/or separation of mixed wastes into any of its constituents.
Lagooning - temporary	This does not include settlement or dewatering lagoons, since these involve treatment.
Repackaging of the same waste types without sorting or mixing	This includes compaction and baling of the same waste types where the wastes are dry and the compaction or baling takes place as an integral part of bulking (see above) and does not give rise to any emissions or exudates from the waste.
TREATMENT (not including Metal Recycling): **<u>Physical treatment;</u> includes the following:**	**Includes associated delivery and despatch operations.** **Includes 'operational storage', as defined above under 'Storage'.**
Separation and sorting of wastes:	Dismantling Degassing Draining Filtration Grading Screening Separation Settlement Sorting of wastes into different components (not segregation or repackaging of the same waste types into physically smaller units) Repackaging of waste types which involves sorting or mixing of different waste types or components, or other treatment
Size reduction and separation by cutting, etc.:	Chipping Cutting (including oxy-acetylene) Grinding Pelletisation

SPECIFIED WASTE MANAGEMENT OPERATIONS - Classifications:	Guidance on the types of waste operations which fall within the 'Specified Waste Management Operations' classifications, and which should therefore be described in the working plan:
	Shearing Shredding
Size reduction by densification:	Compaction of wastes - other than as an integral part of placing wastes during disposal to land Crushing Densifying Dewatering
Mixing (not bulking of the same waste types):	Blending Maceration Pulverisation
Heat treatment:	Autoclaving Microwaving
Chemical or Physico-Chemical Treatment:	Absorption Coagulation Disinfection Distillation Fixation Flocculation Leachate treatment off-site, other than as part of landfill operation Neutralisation Oxidation Precipitation Solidification Sterilisation Vitrification Washing
Biological Treatment:	Anaerobic digestion Bioremediation Biological treatment Composting
DISPOSAL TO LAND:	**Includes associated delivery and despatch operations.** **Includes 'operational storage', as defined above under 'Storage'.**
Landfill:	Landfill (including landraising) - includes compaction operations which are integral part of waste placement Landfill gas flaring as part of or resulting from landfill operation Leachate treatment as part of landfill operation Burial

SPECIFIED WASTE MANAGEMENT OPERATIONS - Classifications:	Guidance on the types of waste operations which fall within the 'Specified Waste Management Operations' classifications, and which should therefore be described in the working plan:
Injection into land:	Boreholes Injection into land
Spreading onto land	Irrigation Landspreading
Permanent storage	Impoundment Encapsulated entombment Permanent lagooning
DISPOSAL OTHER THAN TO LAND:	**Includes associated delivery and despatch operations.** **Includes 'operational storage', as defined above under 'Storage'.** Burning Incineration

WP/1.120: PERMITTED WASTES

FACILITY TYPE: All sites.

USE:

Necessary condition for all licences.

RISK ASSESSMENT:

See WP/1.110.

DESCRIPTION:

This part of the working plan should include a table of waste types which are to be accepted at the facility in order to be subject to the waste management operations specified under WP/1.110. The waste types should be listed using the UK Waste Classification. This is currently being developed by the Agency. The applicant should consult the Agency licensing officer on its status and availability, and on the classification system that should be used pending its issue.

These waste types must be consistent with the licence conditions, which will specify permitted categories of wastes as per the application form, using the following categories:

Inert wastes
Scrap Metal
Special Wastes
Degradable Household Wastes (excluding inert, scrap metal and Special wastes)
Degradable Commercial Wastes (excluding inert, scrap metal and Special wastes)
Degradable Industrial Wastes (excluding inert, scrap metal and Special wastes)
Other wastes (these must be specified)

The licence condition will specify maximum annual quantities against these categories so that the appropriate Charge Code for the licence can be identified.

[Note: Waste acceptance procedures are covered separately by WP/4.210.]

Disposal to land - specification of loading rates and/or concentrations:

Where the specified waste types are to be disposed of to land, a maximum loading rate or concentration within the landfill must be specified against each waste type which contains or consists of List I or List II substances. The applicant should specify proposed loading rates for the detailed waste types identified in the working plan. These loading rates and/or concentrations should be determined on the basis of the site design and supporting risk assessment.

The Agency may impose restrictions on permitted loading rates and/or concentrations of specified waste types. The applicant should discuss proposed loading rates and concentrations at an early stage.

References:

1. **Statutory guidance:**

WMP4 (4.13-4..20)

DoE Circular 11/94, Annex 7: Protection of Groundwater.

2. Other guidance:

List I and List II substances: **DoE Circular 11/94, Annex 7.**

WP/1.130: HOURS OF OPERATION

FACILITY TYPE: All sites.

DESCRIPTION:

This section of the working plan should specify the permitted hours of operation as set under the relevant planning permission, and proposed times for carrying out specified waste management operations consistent with those permitted hours.

References:

1. **Statutory guidance:**

   WMP4 (4.30)

2. **Other guidance:**

SECTION 2: SITE ENGINEERING FOR POLLUTION PREVENTION AND CONTROL

Scope:

The specifications in this section cover the engineered systems that will be provided for the containment and control of wastes and waste emissions during the waste management operations specified in the working plan, using Specification WP/1.110.

Generic Guidance on the Section 2 Specifications:

The systems provided in accordance with the specifications in this section should meet the following generic requirements. (See the individual specifications for the detailed requirements under relevant headings.)

Risk Assessment:

The requirements for and details of the system should be based upon the site investigation and risk assessment provided in support of the application. Unless otherwise specified, these specifications apply to facilities where the risk assessment identifies risk(s) of pollution of the environment that can be either prevented or controlled and minimised by the relevant engineered systems. The risk should be assessed upon the basis of the waste management operations and the waste types specified in the working plan, using Specifications WP/1.110 and WP/1.120.

Description:

This describes the information required in, or in support of, that section of the working plan. The general standard is that the working plan should provide the confidence that the system will be fit for purpose, and will meet the relevant standards that are required for environmental protection.

1. Engineered systems:

The general standard is that the working plan should provide the confidence that the system as provided, operated and maintained will be fit for purpose, and will meet the relevant standards that are required for environmental protection. More specific standards are given under the following individual headings, where relevant to the system.

1.1 Design:

A technically justified design must be provided for the system, based on the risk assessment supporting the application - this should include drawings and/or plans to appropriate scales and should provide the design details specified under this sub-heading.

The design of the relevant system will use information from the site investigation and risk assessment to indicate the design details required. The design will be detailed in the working plan and will include technical specifications for all materials used as well as scale drawing(s) of the proposed installations.

Where the applicant proposes to fully develop the detailed design of the site on a phased basis, such as for a phased landfill operation, an outline design for the system must be provided as a minimum, in sufficient detail to enable the design to be assessed and licence conditions to be drafted. This should be discussed in detail with the Agency licensing officer.

Detailed design drawings and specifications should be included in or specifically referenced as part of the relevant section of the working plan, except where they may reasonably be expected to require ongoing development in response to operational conditions and the design is being carried out by a competent and suitably qualified engineer(s) under a detailed Construction Quality Assurance Plan (see below).

1.2. Construction:

A construction methodology which describes how the works will be undertaken.

Detailed method statements may be generally referenced in support of, rather than as part of, the relevant section of the working plan, where it is reasonable to expect it to require ongoing development in response to operational conditions and the work is being carried out under the fulltime supervision of competent and suitably qualified engineer(s) under a detailed Construction Quality Assurance Plan (see below).

1.3 Construction programme:

A construction programme must be provided, which details the time frame for the works, including any proposed phased development (this may be generally referenced in support of, rather than as part of, the working plan).

The timing of construction and/or installation may be dependent upon the phasing of the site.

For engineered monitoring systems external to engineered site containment, this should not be less than 12 months in advance of any waste deposit (or waste deposit in the next cell or phase to be filled if the landfill is in operation and in phased development).

1.4 Construction Quality Assurance Plan (CQAP):

A CQAP for the system must be provided which details the assurance and validation process for that system.

It may be considered that documented and controlled construction quality assurance plans and procedures may be generally referenced in support of, rather than as part of, the working plan, to enable reasonable flexibility. This should be discussed with the Agency licensing officer.

The CQAP should cover all permanent elements or fixed elements of the engineering and construction, unless otherwise justified by the applicant and agreed by the Agency. The CQAP should be supported by detailed method statements.

The CQAP and method statements must be drafted by competent and suitably qualified engineer(s) who shall also prepare all technical (and, where relevant, geotechnical) reports and provide validation of the specified engineering works. The detail of the qualifications and experience of the engineer(s) shall be submitted to by the Agency in writing.

Construction of the system must be supervised by competent and suitably qualified engineers. It is essential that full records are kept and made available on request for each

element of the engineering and that close liaison is maintained with the Agency throughout the works.

The applicant/licence holder will be required to submit a Construction Quality Assurance Validation Report to the Agency following the completion of the engineering works. The report shall provide validation by the QA Engineer that all the works subject to CQA procedures have been carried out in accordance with the method statements, design and specification consented by the Agency in the relevant licence conditions and parts of the working plan. The content of the validation report and its supporting information (such as, records of as-built design detail, of construction records and of quality assurance checks and tests on 'fitness for purpose' of the engineering) should be discussed with your Agency licensing officer.

It may not be practicable for the system to be maintained or replaced during the lifetime of the site. This will usually apply to the engineered landfill containment system (including the liner and the final cap), the leachate collection and extraction system, and the landfill gas collection and extraction system. In these cases the Agency requires the construction quality assurance process to be supervised and validated by third party, independent engineers with suitable competencies and qualifications.

1.5 Operating procedures:

Details of how the engineering works will be operated and maintained. References to documented and controlled operating procedures in the relevant section of the working plan may be general. This should be discussed with your Licensing officer.

1.6 Maintenance procedures:

Details of how the engineering works will be maintained. This will include a maintenance programme or schedule, giving frequencies and subjects of inspection, with procedures, responsibilities, and actions and deadlines for repair or replacement in the event of failed, defective or damaged components. References to schedules should be specific; references to documented and controlled maintenance procedures in the relevant section of the working plan may be general. This should be discussed with your Licensing officer.

1.7 Engineering Records:

The design, construction, supervision/testing/validation, operation, and maintenance and repair of the system must be fully documented and recorded. The following information should be provided in or in support of the working plan:

Format and content of records;

Quality assurance of records.

In addition, the working plan should specify where the records will be kept and the data security measures (see Specification WP/7.100: Security and Availability of Records).

WP/ 2.210: ENGINEERED SITE SURFACE AND DRAINAGE SYSTEMS

FACILITY TYPE: All activities other than Disposal to Land

See Specification WP/2.350 for requirements for Disposal to Land

The engineered site surface and drainage systems will consist of one or more of the following:

1. Hardstanding (may include waste storage areas, site roads and vehicle parks);

2. Impermeable pavement and sealed drainage system (may include all waste storage and handling areas, site roads and vehicle parks);

3. Covered building or roofed area.

RISK ASSESSMENT:

An impermeable pavement and sealed drainage system will be required for all areas where waste is to be stored or handled, unless it is demonstrated by the applicant, on the basis of the risk assessment supporting the application, that the requirement is not necessary. The provision of a covered building or roofed area for waste operations will not remove the requirement for an impermeable pavement and sealed drainage system.

Hardstanding does not of itself provide containment, and waste should not be stored or handled on areas of hardstanding unless it is shown that the specified waste management operations and the specified wastes present no risk of contamination of surface water or groundwater.

The risk assessment should assess, on the basis of the waste types to be accepted and the site surface water management systems proposed, the risk of:

a) contamination of land, taking into account the nature and quality of the existing land underlying the site;

b) contamination of groundwater, taking into account the hydrogeology of the site and the proximity of groundwater protection zones;

c) contamination of surface water, taking into account the proximity of controlled surface waters.

DESCRIPTION:

This section of the working plan will describe the site surface and drainage systems that will be provided for all operational areas of the site, including covered buildings or roofed areas where these will be provided.

1. Hardstanding:

The following information should be provided:

1.1 **scale drawing of layout;**

1.2 **description of materials and thicknesses;**

1.3 **description of underlying surface or undergrade material and minimum thickness** - in situ or emplaced;

1.4 **description of waste types** which will be stored, treated or otherwise handled on the areas of hardstanding - these should not include any waste types which are liable to give rise to contaminated surface water runoff or leachate, unless otherwise specifically justified by the applicant in the supporting risk assessment.

2. Impermeable pavement and sealed drainage systems:

A 'sealed drainage system' provided in relation to an impermeable pavement, means a drainage system with impermeable components which does not leak and which will ensure that:

a) no liquid will run off the pavement other than via the system; and

b) except where they may be lawfully be discharged, all liquids entering the system are collected in a sealed sump.

Note: Discharges to foul sewer will require an appropriate discharge consent from the relevant water authority. Discharges direct to ground (eg. soakaway) or to surface water or groundwater, will require an appropriate discharge consent from the Agency.

2.1 Specified standards:

Impermeable pavements and sealed drainage systems, and covered buildings and roofed areas should be engineered and maintained to be fit for purpose, and to meet the following standards:

2.1.1 Where appropriate, the site surface water collection and drainage system should segregate surface water runoff which is uncontaminated from surface water runoff which is potentially contaminated by contact with waste.

2.1.2 Impermeable pavements should be provided with side barriers where appropriate and drainage gullies which are laid to a fall such that any liquid lying on the impermeable pavement is directed to a sealed sump, interceptor or other lawful discharge; and should be constructed to a standard sufficient to withstand damage from the types of plant and equipment intended to be used in those areas.

2.1.3 Side barriers or other systems should prevent the escape of any liquid which is collected.

2.1.4 The sealed drainage system should not be allowed to overflow.

2.2 Contents:

The following information should be provided:

2.2.1 **scale drawings of layout and construction of impermeable pavement and sealed drainage systems,** including details of, where provided, of kerbing, interceptors, discharge points, sumps, and isolation systems;

2.2.2 **technical specifications of materials and construction:**

these must ensure adequate drainage and an appropriate degree of imperviousness to liquids and, where appropriate to the waste types to be handled, of resistance to chemical attack;

the construction of the impermeable pavement should be to an engineering standard appropriate to the materials that will be handled on it and the processes to be used;

the transmission of fluids through the pavement or joints should be prevented; in order to ensure imperviousness to liquids and to provide an appropriate standard of containment, an impermeable membrane between the pavement/drainage system and the underlying ground may be required;

sealed sumps and interceptors should be designed and maintained to give a specified minimum retention time - for example, WMP4A gives a standard minimum retention of 6 min per chamber at max. flow rate.

2.2.3 **construction programme and construction quality assurance**:

the construction should be supervised and validated by a suitably qualified engineer under a suitably documented and recorded quality assurance procedure (for existing pavements, validation of the pavement quality against the specification or other agreed performance standards should be provided);

2.2.4 **maintenance schedules:**

impermeable pavements and sealed drainage systems should be inspected and maintained at specified minimum frequencies appropriate to the usage, and defects or damage should be repaired within specified times.

3. <u>Covered building or roofed areas</u>**:**

Where such a provision is proposed, the following information should be provided:

3.1 **scale drawing of plan and elevations:**

these should show the roof surface water drainage system and its relation to the impermeable pavement and sealed drainage or other drainage systems on the site;

3.2 **description of building;**

3.3 **maintenance schedules:**

covered buildings and roofed areas should be inspected and maintained at specified minimum frequencies, and defects or damage should be repaired within specified times.

References:

1. **Statutory guidance: WMP4 (4.10)**

2. **Other guidance:**

WP/ 2.230: ENGINEERED CONTAINMENT FOR STORAGE OF WASTES IN LIQUID, SLUDGE OR POWDER FORM IN FIXED TANKS

FACILITY TYPE: All sites where potentially polluting wastes in liquid, sludge or powder form are stored in tanks.

Landfill sites: Leachate storage tanks and treatment lagoons are covered by WP/2.330.

RISK ASSESSMENT:

Engineered secondary containment will be required for the storage or treatment of waste in fixed tanks, unless it is demonstrated by the applicant, on the basis of the risk assessment supporting the application, that the requirement is not necessary.

DESCRIPTION:

This section of the working plan will cover:

1. Above ground fixed tanks - bunding and impermeable pavement;

2. Underground tanks - secondary containment.

This section of the working plan should provide details in accordance with the Generic Guidance on the Section 2 Specifications. The following should also be taken into account:

1. Above ground fixed tanks:

1.1 Specified standards:

The working plan should provide the confidence that the bunding and impermeable pavement is fit for purpose and will be designed, constructed and maintained to ensure that:

1.1.1 Each bunded area has a maintained capacity not less than a specified minimum, as a proportion of the total capacity of the tank(s) within the bund.

1.1.2 The floors and walls of the bund are impervious to the contents of the tanks.

1.1.3 Inlet, outlet and vent pipes are directed downwards within the bunded area.

1.1.4 All tanks, including those containing water, are labelled to show the contents.

1.1.5 Bunds do not have drainage outlets, and the integrity of the bunds is maintained at all times.

1.2 Contents:

The following information should be provided:

1.2.1 **scale drawings of layout and construction of bunding and impermeable pavement;**

1.2.2 **technical specifications of materials and construction:**

these must ensure an appropriate degree of imperviousness to liquids and, where appropriate to the waste types to be stored, of resistance to chemical attack;

the construction of the impermeable pavement should be to an engineering standard appropriate to the loading of the full tanks;

the transmission of fluids through the pavement or joints should be prevented; in order to ensure imperviousness to liquids and to provide an appropriate standard of containment, an impermeable membrane between the pavement/drainage system and the underlying ground may be required.

1.2.3 **construction programme and construction quality assurance**:

the construction should be supervised and validated by a suitably qualified engineer under a suitably documented and recorded quality assurance procedure (for existing bunding, validation of the pavement quality against the specification or other agreed performance standards should be provided);

1.2.4 **maintenance schedules:**

bunding and impermeable pavements should be inspected and maintained at specified minimum frequencies appropriate to the usage, and defects or damage should be repaired within specified times.

2. Underground tanks:

2.1 Specified standards:

The working plan should provide the confidence that the secondary containment is fit for purpose and will be designed, constructed and maintained to ensure that:

2.1 it is impervious to the contents of the tank;

2.2 it will contain, in the event of a leak, the contents of the tank without overflowing.

2.2 Contents:

The following information should be provided:

2.2.1 **scale drawings of layout and construction of secondary containment;**

2.2.2 **technical specifications of materials and construction:**

these must ensure an appropriate degree of imperviousness to liquids and, where appropriate to the waste types to be stored, of resistance to chemical attack;

the construction of the tanks and secondary containment should be to an engineering standard appropriate to the loading of the full tanks;

the transmission of fluids through the secondary containment should be prevented; in order to ensure imperviousness to liquids and to provide an appropriate standard of containment, an impermeable membrane between the secondary containment and the surrounding ground may be required.

2.2.3 **construction programme and construction quality assurance:**

the construction should be supervised and validated by a suitably qualified engineer under a suitably documented and recorded quality assurance procedure (for existing secondary containment, validation against the specification or other agreed performance standards should be provided);

2.2.4 **maintenance schedules:**

underground tanks and secondary containment should be inspected and maintained at specified minimum frequencies appropriate to the usage, and defects or damage should be repaired within specified times; a leak detection system may be required.

References:

1. **Statutory guidance:**

   WMP4 (5.77)

2. **Other guidance:**

   Concrete Bunds for Oil Storage Tanks (CIRIA/Environment Agency Joint Guidelines) - apply as relevant to other storage tanks.

   Masonry Bunds for Oil Storage Tanks (CIRIA/Environment Agency Joint Guidelines) - apply as relevant to other storage tanks.

   Above Ground Oil Storage Tanks: PPG2 (Environment Agency Pollution Prevention Guidelines) - apply as relevant to other storage tanks.

   Safe Storage and Disposal of Used Oils: PPG8 (Environment Agency Pollution Prevention Guidelines) - apply as relevant to other storage tanks.

   Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) Regulations 1991

WP/ 2.232: ENGINEERED CONTAINMENT FOR WASTES IN LIQUID, SLUDGE OR POWDER FORM IN DRUMS AND OTHER MOBILE TANKS AND CONTAINERS

FACILITY TYPE: All sites where potentially polluting wastes in liquid, sludge or powder form are stored or handled in drums or other mobile tanks and containers.

RISK ASSESSMENT:

Engineered secondary containment will be required for the storage or treatment of waste in drums, mobile tanks and other mobile containers, unless it is demonstrated by the applicant, on the basis of the risk assessment supporting the application, that the requirement is not necessary.

DESCRIPTION:

This section of the working plan will cover silled areas provided for the storage of drums, mobile tanks, skips, etc., which contain wastes, and should provide details in accordance with the Generic Guidance on the Section 2 Specifications. The following should also be taken into account:

1. Specified standards:

The working plan should provide the confidence that the storage areas is fit for purpose and will be designed, constructed and maintained to ensure that:

1.1 Each silled area has a maintained capacity not less than a specified minimum, as a proportion of the total capacity of the containers kept within it.

1.2 The floors and walls of the silled area are impervious to the contents of the containers.

1.3 Silled areas do not have drainage outlets, and the integrity of the sills is maintained at all times.

2. Contents:

The following information should be provided:

2.1 **scale drawings of layout and construction of silled areas with impermeable pavement;**

2.2 **technical specifications of materials and construction:**

these must ensure an appropriate degree of imperviousness to liquids and, where appropriate to the waste types to be stored, of resistance to chemical attack;

the construction of the impermeable pavement for the silled area should be to an engineering standard appropriate to the loading that will be placed upon it;

the transmission of fluids through the pavement or joints should be prevented; in order to ensure imperviousness to liquids and to provide an appropriate standard of containment, an impermeable membrane between the pavement/drainage system and the underlying ground may be required.

2.3 **construction programme and construction quality assurance:**

the construction should be supervised and validated by a suitably qualified engineer under a suitably documented and recorded quality assurance procedure (for existing bunding, validation of the pavement quality against the specification or other agreed performance standards should be provided);

2.4 **maintenance schedules:**

bunding and impermeable pavements should be inspected and maintained at specified minimum frequencies appropriate to the usage, and defects or damage should be repaired within specified times.

References:

1. Statutory guidance:

WMP4 (5.77-5.79)

2. Other guidance:

Concrete Bunds for Oil Storage Tanks (CIRIA/Environment Agency Joint Guidelines) - apply as relevant to drum/mobile container storage areas.

Masonry Bunds for Oil Storage Tanks (CIRIA/Environment Agency Joint Guidelines) - apply as relevant to drum/mobile container storage areas.

Above Ground Oil Storage Tanks: PPG2 (Environment Agency Pollution Prevention Guidelines) - apply as relevant to drum/mobile container storage areas.

Safe Storage and Disposal of Used Oils: PPG8 (Environment Agency Pollution Prevention Guidelines) - apply as relevant to drum/mobile container storage areas.

WP/ 2.320: ENGINEERED CONTAINMENT FOR SOLID AND LIQUID WASTES (LEACHATE AND GAS GENERATING)

FACILITY TYPE: Landfill sites, and treatment and storage lagoons, where wastes with the potential to generate leachate and/or landfill gas are to be accepted.

RISK ASSESSMENT:

Engineered containment systems will be required, except where otherwise justified by the applicant on the basis of a site-specific risk assessment provided in support of the application.

The application and the working plan should be supported by the following:

1. A detailed desk top study and preliminary identification of hazards, pathways and targets.

2. A preliminary site investigation with factual and interpretative reports.

3. A main ground and groundwater investigation with factual and interpretative reports incorporating qualitative and quantitative risk assessments.

These do not need to be part of the working plan, but should be specifically referenced in it.

The design, construction and construction quality assurance (CQA) of the engineered containment system should be developed through the application of detailed risk assessment methodologies, using probabilistic risk assessment. Guidance on this is given in WMP26B (Landfill Design, Construction and Operational Practice).

Knowledge and understanding of how many engineering materials perform in the landfill environment is still evolving from a relatively limited state. Risk assessment techniques are at least partly based upon this knowledge and experience, and should therefore be used with caution when setting limits of performance or when interpreting the results. Numerical assessment alone will not be sufficient to provide complete justification for a design. Professional engineering judgement, experience of how liner systems perform in the field, and confidence in the capabilities of materials should all play a significant part in the risk assessment process. Factors of safety should be identified and applied to designs, where appropriate.

DESCRIPTION:

(The details that should be provided for leachate and landfill gas management systems are specified separately - see Specifications WP/2.330 and WP/2.340.)

This section of the working plan should provide details in accordance with the Generic Guidance on the Section 2 Specifications. The following should also be taken into account:

1. Scope and Development:

This section of the working plan should cover the engineered containment system for each cell or phase and for the site as a whole, including:

1. Foundation conditions and foundations for liner;

2. Liner;

3. Liner protection.

These systems may be developed in phase with each cell or phase of site operations. The applicant should provide the design and required information in outline for the complete site, in sufficient detail to support their risk assessment. As the design and construction of the system is fully developed for each cell or phase, the working plan will require to be amended and the risk assessment will need to be reviewed.

The basic principles are that the containment system for each cell or phase should be complete and able to function independently before that cell or phase is used for waste disposal; and that the containment should continue to function effectively within the design parameters for the design life of the site until the licence is surrendered.

The details provided under this part of the working plan are so fundamental to the environmental performance of the landfill and to the philosophy of 'landfill by design' (see WMP26B), that failure to provide the required standard of information will be deemed sufficient reason for the Agency to consider rejection of the application. It is not considered appropriate for the Agency to draft a detailed and prescriptive condition regarding these risk management provisions, since the required details will be so site-specific and risk-based in each case. Neither is it considered sufficient for the Agency to set only the environmental performance standards for the required systems, without reference to the details required in the working plan, since the specified risk management provisions are so fundamental to risk prevention, and the regulation of outcome rather than means does not provide sufficient protection in this case. It is up to the applicant to provide and justify their risk-based design for the required system.

The details provided in this section of the working plan will need to be consistent with those provided for the other section in accordance with the following Specifications:

Leachate containment, collection and monitoring systems (WP/2.330);
Landfill gas containment, collection and treatment systems (WP/2.340);
Landfill gas monitoring systems (WP/5.101);
Groundwater monitoring systems (WP/5.400);
Final capping (WP/2.360).

2. Specified Standards:

2.1 Design lifetime:

The working plan should provide the confidence that the engineered containment systems are fit for purpose and will meet their design specifications throughout the specified minimum design lifetime. This should be consistent with the assessed risk of the site and the consequent landfill design philosophy, eg. the flushing bioreactor principle. Article 10 of the Landfill Directive (currently under consultation and to be considered by the European Parliament) requires that a period of at least 30 years be allowed for closure and aftercare.

2.2 Design and Construction standards:

2.2.1 **Foundation Conditions and Engineering** - the foundations of the landfill should be designed and constructed to ensure:

a) the structural integrity of the base, side slopes, and any bunds;

b) adequate load bearing capacity to prevent subsidence which may be detrimental to the liner system and the leachate drainage and collection system;

c) the structural stability of the engineered liner system.

2.2.2 **Liner system** - the liner system should be designed and constructed to:

a) prevent the uncontrolled release of liquid and/or gas into the environment via the base and sides of the landfill;

b) control the ingress of ground and surface water to minimise the hydraulic loading on the liner system;

c) provide a stable seal throughout the design life of the site.

and shall consist of a specified design and type.

2.2.3 **Liner Protection Systems** - the liner protection system should protect the liner system from stresses, puncture and penetration from overlying drainage media and waste.

2.3 Standards for Construction Quality Assurance and Validation:

2.3.1 The detailed construction quality assurance plan (CQAP) should cover all elements of the engineered landfill containment system. The quality assurance plan should be supported by detailed method statements. Under the licence conditions, minor changes to these detailed method statements should be capable of being made on site during the development, in discussion with and in receipt of a written acknowledgement from the Agency. This sort of minor change ought to be able to be made on site with the Agency; this should be discussed with the Agency licensing officer.

2.3.2 The drafting of the CQAP and method statements, the supervision of the construction, sampling and testing, documentation and recording, and the validation, must be carried out by third party, independent, suitably qualified and competent engineers. This should be discussed with the Agency licensing officer.

2.3.3 All sampling and testing of materials must be in accordance with the relevant standards (normally British, European and American standards agreed with the Agency), and shall be carried out by a laboratory whose methods are accredited to ISO 9000, NAMAS, EN45000 or other standard agreed in writing by the Agency.

2.3.4 Validation Report

Prior to any waste deposition in a lined phase or cell, the Construction Quality Assurance Validation Report for the engineering works shall be required to be submitted to the Agency. The report shall include the following details:

a) The results of all testing. This must include field and laboratory tests and the records of and failed tests with the details of the remedial action taken referenced to appropriate secondary testing. Any test results which fail due to either poor sampling, specimen preparation or defective testing must be accompanied by a written explanation by the Soils Laboratory or Quality Assurance (QA) Engineer. The results must be clearly presented and graphs and tables used where necessary.

b) Plans showing the location of all samples and tests

c) "As-built" plans and sections of the works

d) Records of any problems or non-compliance and the solution applied.

e) Any other site specific information considered relevant to proving the integrity of the liner by the QA Engineer or the Agency.

f) Validation by the QA Engineer that all the works subject to QA and CQA procedures have been carried out in accordance with the method statements, design and specification agreed in writing by the Agency.

3. Contents:

This section of the working plan shall describe the design, construction and construction quality assurance of the works, including all necessary engineering plans and drawings, documentation, procedures and technical standards, and supported by the risk assessment and other relevant scientific evidence and technical calculations; covering:

3.1 Foundation Conditions and Site Preparation - including:

3.1.1 the investigation, remediation and monitoring of ground stability (for example, where there are mining and quarrying problems) (the details of the site investigation should be included as part of the application);

3.1.2 groundwater control systems and leak detection and leak collection systems;

3.1.3 the site design, which should also provide information on the following:

a) basal and side slope stability;

b) compatibility between the engineered materials and the basal bearing capacity, eg. liner integrity with respect to differential settlement; and

c) controlled settlement.

3.2 Liner system design and construction:

3.2.1 The liner systems, which may include:

Mineral liners (eg. glacial tills, bentonite enhanced soils, asphalt liners and weathered mudstones; may include in-situ reworked clays where required standards are demonstrated);

Geosynthetic liners (geomembranes and geosynthetic clay liners);

Composite liners (generally a combination of a mineral and geosynthetic liner, although other combinations are possible).

3.2.2 Aspects covered in the design description should include:

a) liner type;
b) liner design;
c) liner construction;
d) liner subgrade;
e) liner specification
f) durability and physiochemical stability - performance life should be specified, with minimum target for containment to specified standard against indicators which will be monitored; and
g) the design of any detail for the foundations for leachate chambers (see WP/2.230).

3.3 Liner Protection Systems:

3.3.1 Liner protection systems may include mineral materials (eg. suitable sands and gravels which do not damage the liner), and geosynthetic materials (such as geotextiles and geocomposites).

3.3.2 Aspects covered in the design description should include protection design, protection specification, and appropriate laboratory and performance testing.

References:

1. Statutory guidance: WMP4.

2. Other guidance: WMP26B.

WP/ 2.330: LEACHATE MANAGEMENT SYSTEMS

FACILITY TYPE: Disposal to Land

For sites where containment and control of leachate generating wastes is required for the protection of the environment.

RISK ASSESSMENT:

Engineered leachate management systems will be required where the site design is based upon engineered containment.

The design, construction and construction quality assurance (CQA) of the engineered leachate management and monitoring systems should be developed through the application of detailed risk assessment methodologies, using probabilistic risk assessment.

Knowledge and understanding of how many engineering materials perform in the landfill environment is still evolving from a relatively limited state. Risk assessment techniques are at least partly based upon this knowledge and experience, and should therefore be used with caution when setting limits of performance or when interpreting the results. Numerical assessment alone will not be sufficient to provide complete justification for a design. Professional engineering judgement, experience of how leachate collection and extraction systems perform in the field, and confidence in the capabilities of materials should all play a significant part in the risk assessment process. Factors of safety should be identified and applied to designs, where appropriate.

DESCRIPTION:

This section of the working plan should provide details in accordance with the Generic Guidance on the Section 2 Specifications. The following should also be taken into account:

1. Scope and Development:

This section of the working plan should cover the leachate management system for each cell or phase and for the site as a whole, including:

1. Leachate collection and extraction systems; i.e. engineered means by which leachate is drained, collected and removed from each cell or phase;

2. Leachate monitoring systems; i.e. the engineered leachate monitoring points, for monitoring depth and other specified parameters of leachate within each cell or phase(the monitoring programme requirements are covered by WP/5.200);

3. Leachate storage and treatment systems; i.e. the engineered means by which leachate will be stored and/or treated prior to discharge or removal from the site, e.g. leachate lagoons.

These systems may be developed in phase with each cell or phase of site operations. The applicant should provide the design and required information in outline for the complete site, in sufficient detail to support their risk assessment. As the design and construction of the system is fully developed for each cell or phase, the working plan will require to be amended and the risk assessment will need to be reviewed.

The basic principles are that the leachate management system for each cell or phase should be able to function independently from the time that cell or phase is first used for waste disposal;

and that the system should continue to function effectively within the design parameters for the design life of the site until the licence is surrendered.

The details provided under this part of the working plan are so fundamental to the environmental performance of the landfill and to the philosophy of 'landfill by design' (see WMP26B), that failure to provide the required standard of information will be deemed sufficient reason for the Agency to consider rejection of the application. It is not considered appropriate for the Agency to draft a detailed and prescriptive condition regarding these risk management provisions, since the required details will be so site-specific and risk-based in each case. Neither is it considered sufficient for the Agency to set only the environmental performance standards for the required systems, without reference to the details required in the working plan, since the specified risk management provisions are so fundamental to risk prevention, and the regulation of outcome rather than means does not provide sufficient protection in this case. It is up to the applicant to provide and justify their risk-based design for the required system.

2. Specified Standards:

2.1 Design lifetime:

The design lifetime for the engineered leachate collection system should be consistent with that for the engineered containment system (see WP/2.320), taking into account practicable maintenance and repair.

2.2 Design, construction and maintenance standards:

2.2.1 The leachate collection and extraction system should be designed and constructed to:

1.1 enable leachate levels to be maintained within the specified system performance standards;
1.2 enable drained leachate to be collected for management and disposal *[or recirculation]*;
1.3 ensure the structural stability of the waste body;
1.4 withstand physical damage from the loading imposed by the waste, and any compaction operations working over the system;
1.5 be resistant to chemical attack in the landfill internal environment;
1.6 be able to function for the design lifetime of the site;
1.7 enable inspection, testing and maintenance until such time as the system is no longer required to function.

2.2.2 The leachate monitoring system should be designed, constructed and maintained to:

2.1 permit the true level of leachate at each monitoring point to be measured and recorded to within a specified accuracy;
2.2 enable an accurate profile of the levels of leachate to be established when required across each phase or cell;
2.3 enable representative samples of the leachate in each phase or cell to be taken when required;
2.4 withstand physical damage and chemical attack in the landfill internal environment;
2.5 prevent short-circuiting of the leachate drainage and collection system to the base of the landfill;

2.6 avoid damage to the engineered containment which may be caused through the installation or loading of the leachate management system;

2.7 be secure so as to prevent unauthorised access, entry of foreign matter and emission of gas, vapours or odours beyond the licensed site boundary.

2.2.3 The leachate treatment and disposal systems within the licensed area should be designed, constructed and maintained to:

3.1 have sufficient capacity to enable leachate levels within the landfill to be controlled within the specified system performance standards;

3.2 be secure to prevent the emission of gas, vapours or odours beyond the licensed site boundary.

2.3 Standards for Construction Quality Assurance and Validation:

In addition to the information given at the beginning of the Section 2 Specifications, the CQA of the leachate collection system should meet the following standards:

2.3.1 The detailed construction quality assurance plan (CQAP) should cover all fixed elements of the engineered leachate collection system. The quality assurance plan should be supported by detailed method statements. Under the licence conditions, minor changes to these detailed method statements should be capable of being made on site during the development, in discussion with and in receipt of a written acknowledgement from the Agency. This sort of minor change ought to be able to be made on site with the Agency; this should be discussed with the Agency licensing officer.

2.3.2 The drafting of the CQAP and method statements, the supervision of the construction, documentation and recording, and the validation of the works, should be carried out by third party, independent, suitably qualified and competent engineers. This should be discussed with the Agency licensing officer.

3. Contents:

This section of the working plan shall describe the design, construction and construction quality assurance of the works, including all necessary engineering plans and drawings, documentation, procedures and technical standards, and supported by the risk assessment and other relevant scientific evidence and technical calculations.

The design description should include details of the following, as appropriate:

3.1 Leachate collection and extraction system: type and specification of drainage; eg. drainage blankets and pipes; design, construction (including stability) and maintenance of leachate chambers or chimneys and monitoring points; type and specification of drainage protection; design falls and hydraulic calculations; materials specifications and testing.

3.2 Site engineered systems for monitoring leachate depth and quality: locations and designs.

There should be at least 2 wells per cell which are in continuity with the drainage system but which are independent of the depression well effects caused by extraction from the leachate drains; more than 2 wells may be necessary to establish the required profile for each cell;

3.3 Leachate treatment/disposal systems within the licensed area; eg. leachate lagoons, sumps and chimneys, pumping/discharge systems.

3.4 System operation and maintenance:

a) Leachate collection and extraction;

b) Engineering maintenance.

(Leachate monitoring programme requirements are covered by WP/5.200)

References:

1. **Statutory guidance:**

   WMP4

2. **Other guidance:**

   WMP26B (Chap. 6)

WP/ 2.340: LANDFILL GAS MANAGEMENT SYSTEMS

FACILITY TYPE: Disposal to Land

For sites where containment and control of landfill gas generating wastes is required for the protection of the environment.

RISK ASSESSMENT:

The requirement for an engineered landfill gas management system should be based upon the site-specific landfill gas risk assessment provided in support of the application. An engineered landfill gas management system will be required where the site design is based upon engineered containment systems, or else where the permitted waste types are to include wastes likely to generate landfill gas. The applicant must provide a risk-based justification if they propose not to provide a landfill gas management system for such a site.

The design, construction and construction quality assurance (CQA) of the landfill gas collection and extraction system should be developed through the application of detailed risk assessment methodologies, using probabilistic risk assessment. The design should be reviewed against the results of landfill gas monitoring within the waste mass, where this is carried out under WP/5.100.

Knowledge and understanding of how many engineering materials perform in the landfill environment is still evolving from a relatively limited state. Risk assessment techniques are at least partly based upon this knowledge and experience, and should therefore be used with caution when setting limits of performance or when interpreting the results. Numerical assessment alone will not be sufficient to provide complete justification for a design. Professional engineering judgement, experience of how landfill gas collection and extraction systems perform in the field, and confidence in the capabilities of materials should all play a significant part in the risk assessment process. Factors of safety should be identified and applied to designs, where appropriate.

DESCRIPTION:

This section of the working plan should provide details in accordance with the Generic Guidance on the Section 2 Specifications. The following should also be taken into account:

1. **Scope and Development:**

This section of the working plan should cover the landfill gas management system for each cell or phase and for the site as a whole, including:

1. Landfill gas collection and extraction systems; i.e. engineered means by which landfill gas is collected and removed from each cell or phase;

2. Landfill gas monitoring systems; i.e. the engineered landfill gas monitoring points, for monitoring specified parameters of landfill gas within each cell or phase (the monitoring programme requirements are covered by WP/5.100);

3. Landfill gas treatment and disposal systems; i.e. the engineered means by which landfill gas will be treated and disposed of (including landfill gas flaring and use as an energy source).

These systems may be developed in phase with each cell or phase of site operations. The applicant should provide the design and required information in outline for the complete site, in sufficient detail to support their risk assessment. As the design and construction of the system is fully developed for each cell or phase, the working plan will require to be amended and the risk assessment will need to be reviewed.

The basic principles are that the landfill gas management system for each cell or phase should be complete and able to function independently from the time that waste deposits are completed in that cell or phase; and that the system should continue to function effectively within the design parameters for the design life of the site until the licence is surrendered.

The details provided under this part of the working plan are so fundamental to the environmental performance of the landfill and to the philosophy of 'landfill by design' (see WMP26B), that failure to provide the required standard of information will be deemed sufficient reason for the Agency to consider rejection of the application. It is not considered appropriate for the Agency to draft a detailed and prescriptive condition regarding these risk management provisions, since the required details will be so site-specific and risk-based in each case. Neither is it considered sufficient for the Agency to set only the environmental performance standards for the required systems, without reference to the details required in the working plan, since the specified risk management provisions are so fundamental to risk prevention, and the regulation of outcome rather than means does not provide sufficient protection in this case. It is up to the applicant to provide and justify their risk-based design for the required system.

2. Specified Standards:

The working plan should provide the confidence that the engineered landfill gas management systems are fit for purpose and are designed, constructed, operated and maintained to meet the following standards:

2.1. Landfill gas collection, extraction, treatment and disposal systems should:

2.1.1 have sufficient capacity to handle all landfill gas emissions from the landfill;

2.1.2 prevent the uncontrolled release of landfill gas from the waste mass in each phase or cell to atmosphere;

2.1.3 prevent the migration of landfill gas beyond the engineered landfill containment system above the specified trigger concentrations;

2.1.4 enable landfill gas to be collected for treatment and/or disposal (via flaring or other controlled release or use as a supplementary fuel);

2.1.5 withstand physical damage from the loading imposed by the waste, and any compaction operations working over the system;

2.1.6 be resistant to chemical attack in the landfill internal environment;

2.1.7 avoid damage to the engineered containment which may be caused through the installation or loading of the landfill gas management system;

2.1.8 be able to function effectively;

2.1.9 be capable of being inspected, tested, maintained and, where necessary, repaired or replaced;

2.1.10 prevent the unauthorised release of landfill gas condensate beyond the waste mass.

2.2 Landfill gas monitoring points should:

2.2.1 permit at any time an accurate determination of landfill gas quality at each monitoring point to be measured and recorded;

2.2.2 enable gas flow rates and differential pressure trends to be measured at each monitoring point when required;

2.2.3 enable representative samples of the landfill gas to be taken for further analysis when required from each monitoring point;

2.2.4 withstand physical damage and chemical attack in the landfill environment;

2.2.5 be secure to prevent unauthorised access and vandalism, and entry of foreign matter; and

2.2.6 provide not less than 4 landfill gas monitoring points within the landfill, and not less than 2 landfill gas monitoring points per hectare of the landfill area.

2.3 Standards for Construction Quality Assurance and Validation:

See the guidance given at the beginning of the Section 2 Specifications.

3. Contents:

This section of the working plan shall describe the design, construction and construction quality assurance of the works, including all necessary engineering plans and drawings, documentation, procedures and technical standards, and supported by the risk assessment and other relevant scientific evidence and technical calculations.

The design description should include details of the following, as appropriate:

3.1 Landfill gas collection and extraction system; which may include: landfill gas barriers (other than those specified in the engineered landfill containment system); landfill gas collection pipes; protection systems for landfill gas collection pipes; pumping/storage systems;

3.2 Landfill gas treatment/disposal systems within the licensed area; which may include: landfill gas flaring; landfill gas power units; alternative treatment and control systems, eg. methane oxidation.

3.3 Site engineered systems for monitoring landfill gas within the waste body: locations and designs.

3.4 Landfill gas treatment/disposal systems within the licensed area; eg. landfill gas flaring systems; energy generation systems.

3.5 System operation and maintenance:

a) Landfill gas collection and extraction;

b) Landfill gas treatment and disposal;

c) Engineering maintenance.

(Landfill gas monitoring programme requirements and monitoring systems external to the landfill are covered by Specifications WP/5.100 and WP/5.101.)

References:

1. Statutory guidance:

WMP4 (Chap. 5)

2. Other guidance:

WMP27
WMP26B (Chap. 6)

WP/ 2.350: ENGINEERED SURFACE WATER MANAGEMENT SYSTEMS

FACILITY TYPE: Disposal to Land

See WP/2.210 for engineered surface water management other than on landfill areas

RISK ASSESSMENT:

Surface water management systems should be engineered for all landfill areas, except where otherwise justified on the basis of a risk assessment by applicant.

The design, construction and construction quality assurance (CQA) of the engineered surface water management collection and drainage system should be developed through the application of detailed risk assessment methodologies, using probabilistic risk assessment.

Professional engineering judgement, experience of how surface water collection and drainage systems perform in the field, and confidence in the capabilities of materials should all play a significant part in the risk assessment process. Factors of safety should be identified and applied to designs, where appropriate.

DESCRIPTION:

This section of the working plan should provide details in accordance with the Generic Guidance on the Section 2 Specifications. The following should also be taken into account:

1. Scope and Development:

This section of the working plan should cover the surface water management system for each cell or phase and for the site as a whole when completed, including:

1. site surface water collection and disposal during the operational phase of each cell or phase;

2. site surface water drainage and disposal following completion of each cell or phase and for the site as a whole, taking account of the final contours of the landfilled area and vulnerable environmental targets.

The details provided under this part of the working plan are so fundamental to the environmental performance of the site, that failure to provide the required standard of information will be sufficient reason for the Agency to consider rejection of the application. It is not considered appropriate for the Agency to draft a detailed and prescriptive condition regarding these risk management provisions, since the required details will be so site-specific and risk-based in each case. Neither is it considered sufficient for the Agency to set only the environmental performance standards for the required systems, without reference to the details required in the working plan, since the specified risk management provisions are so fundamental to risk prevention, and the regulation of outcome rather than means does not provide sufficient protection in this case. It is up to the applicant to provide and justify their risk-based design for the required system.

2. Specified Standards:

2.1 The site surface water collection and drainage system should be designed, constructed, operated and maintained to:

2.1.1 segregate surface water runoff which is uncontaminated from surface water runoff which is potentially contaminated by contact with waste or by other operational activities (eg. wheelwashes);

2.1.2 prevent uncontrolled egress of surface water from the site;

2.1.3 prevent uncontrolled water ingress to the site;

2.1.4 prevent surface water damage to the structure or integrity of the engineered landfill containment system, monitoring systems or final capping.

2.2 **Standards for Construction Quality Assurance and Validation:**

See the guidance given at the beginning of the Section 2 Specifications.

3. **Contents:**

This section of the working plan shall describe the design, construction and construction quality assurance of the works, including all necessary engineering plans and drawings, documentation, procedures and technical standards, and supported by the risk assessment and other relevant supporting scientific evidence and technical standards.

The design description should include details of the following:

3.1 On-site works to prevent uncontrolled discharge of surface water to a specified standard, based on assessment and review of volumes of surface water that may have to be handled over the full operational life of the site and post closure;

3.2 On-site or off-site works to prevent uncontrolled water ingress, e.g. drains, bunds, culverts, diversion of watercourses ;

3.3 On-site works to prevent surface water contamination; eg. settlement tanks, interceptors, covering of storage areas, roof drainage, soakaways.

References:

1. **Statutory guidance:**

WMP4

2. **Other guidance:**

WMP26B, Chap 6.

WP/2.360: INSTALLATION, MAINTENANCE AND PROTECTION OF FINAL CAPPING

FACILITY TYPE: Disposal to Land only

RISK ASSESSMENT:

Final capping will be required where the site design is based upon engineered containment systems.

Final capping may be required where the site design is not based upon engineered containment.

The design, construction and construction quality assurance (CQA) of final capping for the landfill should be developed through the application of detailed risk assessment methodologies, using probabilistic risk assessment.

Knowledge and understanding of how many engineering materials perform in the landfill environment is still evolving from a relatively limited state. Risk assessment techniques are at least partly based upon this knowledge and experience, and should therefore be used with caution when setting limits of performance or when interpreting the results. Numerical assessment alone will not be sufficient to provide complete justification for a design. Professional engineering judgement, experience of how engineered caps perform in the field, and confidence in the capabilities of materials should all play a significant part in the risk assessment process. Factors of safety should be identified and applied to designs, where appropriate.

DESCRIPTION:

This section of the working plan should provide details in accordance with the Generic Guidance on the Section 2 Specifications. The following should also be taken into account:

1. Scope and Development:

This section of the working plan should cover the final capping that will be provided for each cell or phase, including protective measures.

The details provided under this part of the working plan are so fundamental to the environmental performance of the landfill and to the philosophy of 'landfill by design' (see WMP26B), that failure to provide the required standard of information will be deemed sufficient reason for the Agency to consider rejection of the application. It is not considered appropriate for the Agency to draft a detailed and prescriptive condition regarding these risk management provisions, since the required details will be so site-specific and risk-based in each case. Neither is it considered sufficient for the Agency to set only the environmental performance standards for the required systems, without reference to the details required in the working plan, since the specified risk management provisions are so fundamental to risk prevention, and the regulation of outcome rather than means does not provide sufficient protection in this case. It is up to the applicant to provide and justify their risk-based design for the required system.

2. Specified Standards:

2.1 The working plan should provide the confidence that the engineered final cap is fit for purpose and will be designed, constructed and maintained to meet the following standards:

2.1.1 prevent outside contact with the waste body;

2.1.2 prevent uncontrolled surface water infiltration into the relevant cell or phase;

2.1.3 prevent uncontrolled emission of landfill gas to atmosphere from the relevant phase or cell;

2.1.4 prevent damage from overlying materials or installations to the engineered leachate and landfill gas collection systems.

2.2 **Standards for Construction Quality Assurance and Validation:**

In addition to the information given at the beginning of the Section 2 Specifications, the CQA of the leachate collection system should meet the following standards:

2.2.1 The detailed construction quality assurance plan (CQAP) should cover all fixed elements of the engineered final capping. The quality assurance plan should be supported by detailed method statements. Under the licence conditions, minor changes to these detailed method statements should be capable of being made on site during the development, in discussion with and in receipt of a written acknowledgement from the Agency. This sort of minor change ought to be able to be made on site with the Agency; this should be discussed with the Agency licensing officer.

2.2.2 The drafting of the CQAP and method statements, the supervision of the construction, documentation and recording, and the validation of the works, should be carried out by third party, independent, suitably qualified and competent engineers. This should be discussed with the Agency licensing officer.

3. Contents:

This section of the working plan shall describe the design, construction and construction quality assurance of the works, including all necessary engineering plans and drawings, documentation, procedures and technical standards, and supported by the risk assessment and other relevant supporting scientific evidence and technical standards.

The design description should include details of the final cap specifications, including design and dimensions, materials specifications; installation methods, maintenance provisions, and measures provided to protect the cap against damage and deterioration until completion.

References:

1. **Statutory guidance:**

   WMP4 (5.41-5.45)

2. **Other guidance:**

   WMP26B, Chap 10.

SECTION 3: SITE INFRASTRUCTURE

Scope:

The Specification given in this section covers the site security provisions. Other components of the site infrastructure such as site offices, on-site laboratories, weighbridges and wheelwashes are not in themselves mandatory requirements but are options that may be provided as means of meeting Specifications under other Sections.

WP/ 3.500: SITE SECURITY

FACILITY TYPE: All sites.

DESCRIPTION:

1. Scope:

This section of the working plan should cover the site security provisions, these may include, as appropriate to the type of site and waste management operations and waste types, the following:

1.1 Physical barriers; eg. fences, walls, gates.

1.2 Security alarm systems.

1.3 Security patrol provisions.

2. Specified Standards:

The site security provisions should be fit for purpose, and should be kept at a sufficient standard to reasonably prevent unauthorised access to the site, that is, access which is not authorised by the licence holder or otherwise under legal powers of entry.

3. Contents:

This section of the working plan may rely on referenced supporting documents which the applicant may wish to keep confidential for security reasons. This should be discussed with the Agency licensing officer at an early stage. The information should describe the site security provisions at or within the licensed site boundary and at site access points, detailing:

3.1 Type of security and timetable of provision:

3.2 Design standards for physical security, detailing design and specification (scale plans and drawings), including access.

3.3 Operational standards for security, including operational and out-of -hours provisions.

3.4 Maintenance and repair schedules.

References:

1. Statutory Guidance:

WMP4

2. Other guidance:

BSI standard for Fencing - provisions will be site-specific depending on circumstances.

SECTION 4: SITE OPERATIONS

Scope:

The Specifications in this section cover the operational control measures (including relevant plant and equipment, systems and procedures) that will be provided to prevent pollution of the environment (including harm to human health and serious detriment to the local amenity) from the day-to-day waste management operations on the site; including the receipt, control and despatch of wastes, and the activities and processes involved in the keeping, treating and disposal of wastes. Specifications are also provided to cover general requirements common to all sites, and special requirements for a number of particular waste types such as asbestos-bearing wastes.

Generic Guidance on the Section 4 Specifications:

The operational control measures provided in accordance with these specifications (including relevant plant and equipment, systems and procedures) should meet the following generic requirements. (See the individual specifications for the detailed requirements under the relevant headings.)

Risk Assessment:

The requirements for and details of the relevant operational measures should be based upon the risk assessment provided in support of the application, taking into account the intended waste management operations and waste types described under Section 1 and the engineered containment that will be provided in accordance with the Specifications in Section 2.

Some waste treatment processes (other than disposal to land) may require plant and equipment which requires to be designed, constructed and installed, tested and commissioned, operated and maintained to particular specified standards, so as to ensure that they do not cause identified risks to human health and the environment outside the licensed site area and engineered containment. Information on these waste treatment processes should be provided in the working plan in accordance with Specification WP/4.410.

Description:

This describes the information required in, or in support of, that section of the working plan.

The general standard is that the working plan should provide the confidence that the operational measures specified will be fit for purpose, and will meet the relevant standards that are required for environmental protection. More specific standards are given under the following individual headings, where relevant to the operational measures.

The working plan should describe the operational measures to be provided. Descriptions of operational measures should conform to the following, as appropriate:

1. **Operating procedures:**

   These should be fully documented and recorded, with appropriate training and supervision provided. References to documented and controlled operating procedures in the relevant section of the working plan may be general in justified cases. This should be discussed with your Licensing officer.

2. Plant and equipment necessary for operational measures:

The working plan should describe plant and equipment that will be provided, and their manner of use and maintenance, to a sufficient level of detail to ensure that operational staff are clear as to how they should be used so as to maintain the required standards of site operation.

Some waste treatment processes (other than disposal to land) may require plant and equipment which requires to be designed, constructed and installed, tested and commissioned, operated and maintained to particular specified standards, so as to ensure that they do not cause identified risks to human health and the environment outside the licensed site area and engineered containment. The working plan should provide the specified details, including relevant documented and recorded quality control and/or quality assurance procedures.

3. Operating and maintenance records:

Operating procedures for plant and equipment should be fully documented and recorded. References to documented and quality controlled procedures may be general, where justified. This should be discussed with the Agency licensing officer.

Maintenance programmes or schedules should be fully documented and recorded, and specify frequencies and subjects of inspection, with procedures, responsibilities, and actions and deadlines for repair or replacement in the event of failed, defective or damaged components. References to schedules should be specific; references to documented and controlled maintenance procedures in the relevant section of the working plan may be general. This should be discussed with the Agency licensing officer.

4. Quality control and quality assurance of operations:

Quality control or quality assurance should be provided where deviations in the performance of the operation or process may lead to outputs or emissions which do not meet a specified standard, and that standard is necessary for the achievement of identified environmental objectives.

Quality assurance of the output or emissions of the operation or process will normally be required in these cases. This should be supported by appropriate monitoring and sampling programmes, which should be carried out and recorded in accordance with a documented quality assurance plan. Quality control of the operation or process may be relied upon when quality assurance of the output or emissions either would be impractical or would increase risks to human health and the environment, such as, for example, in some clinical waste treatment processes.

QC/QA provisions should be described in the relevant section of the working plan, and should include:

2.1 the quality control measures and/or the monitoring and sampling methodologies that will be used, including documented procedures and documentation (this information may need to be specifically referenced as part of the working plan; this should be discussed with the Agency licensing officer);

2.2 the training and qualifications that will be provided/required for operational staff.

WP/4.140: CONTROL OF MUD AND DEBRIS

FACILITY TYPE: All sites

DESCRIPTION:

This section of the working plan should provide details in accordance with the Generic Guidance on the Section 4 Specifications, and should describe the measures that will be taken on-site to prevent mud or debris from the site operations being carried out of the site and left on or adjacent to the road by vehicles and being lost from control and deposited on the road outside the site boundary. These measures will include preventive controls, which should be provided even though they may be very simple or minimal; and remedial measures, which should be specified in addition to, not in place of preventive controls.

1. Preventive measures:

The measures may include the following:

1.1 Site access and internal roads; details should include specifications for vehicle-cleaning characteristics (eg. drainage, falls, materials and dimensions), construction and maintenance (these may be covered under the details given in accordance with Specification WP/2.210 regarding site roads);

1.2 Inspection and cleaning of vehicles;

1.3 Vehicle cleaning equipment, including locations, specifications, use and maintenance/replacement.

2. Remedial measures:

The measures may include the an appropriate inspection regime for adjacent roads, and/or road cleaning provisions: details should include plant and equipment locations, specifications and use.

References:

1. Statutory guidance:

WMP4 (4.11-4.12)

2. Other guidance:

WP/4.151: POTENTIALLY POLLUTING LEAKS AND SPILLAGES OF WASTE

FACILITY TYPE: All sites

RISK ASSESSMENT:

Operational measures to prevent, control and remediate potentially polluting leaks and spillages of waste should be provided for all sites which are to accept wastes which consist of or contain potentially polluting or harmful liquids, sludges or powders. These measures should be consistent with the engineered containment provisions for the site and with the other operational measures provided.

The standards required will depend upon the risk assessment of the site, taking into account the hazardous properties of the permitted waste types (composition and form), their likely quantities, and the risks presented by leaks or spillages of those wastes during storage or treatment and their associated handling operations.

A leak or spillage may not be polluting of itself but may lead to pollution if not properly controlled and remediated. Minor or insignificant leaks or spills may be covered by suitable 'housekeeping' routines, as a *de minimis* measure.

DESCRIPTION:

This section of the working plan should provide details in accordance with the Generic Guidance on the Section 4 Specifications, and should include procedures for the prevention, detection, control, minimisation and remediation of leaks and spillages of wastes within the licensed area. These will cover the following activities:

1 Physical handling and control of wastes;

2 Use and maintenance of containers for wastes, which may include fixed tanks (above ground and underground), mobile tanks, drums and other mobile containers, such as skips.

Maintenance schedules and procedures for engineered containment systems should be covered under the other relevant sections of the working plan, in accordance with the Specifications given in Section 2. They may be cross-referenced in this section.

The description of the relevant operational procedures should meet the following requirements, as appropriate:

1. **Fixed tanks (above ground or underground):**

   Each tank used to hold wastes which consist of or contain potentially polluting liquids, sludges or powders, should be:

   a) loaded and unloaded in accordance with the documented filling and emptying procedures;

   b) clearly and unambiguously labelled regarding its contents;

   c) provided with means for measuring the quantity of material and the void space in the tank, which must be maintained and calibrated as specified;

d) monitored for quantity of material and void space and the monitoring measurements recorded;

e) inspected and maintained according to the documented and recorded maintenance schedules and procedures;

f) in the event of damage or deterioration to a tank that is, or is likely to cause, a leak, that tank shall be repaired immediately.

2. Drums, mobile tanks and other mobile containers:

Each drum or other mobile container used to hold wastes which consist of or contain potentially polluting liquids, sludges or powders, should be:

a) loaded and unloaded in accordance with documented handling procedures;

b) filled and emptied in accordance with documented filling and emptying procedures;

c) clearly and unambiguously labelled regarding its contents;

d) inspected and maintained according to documented and recorded maintenance schedules and procedures;

e) in the event of damage or deterioration to a container that is, or is likely to cause, a leak, that container shall be repaired or replaced immediately.

3. Control and remediation measures:

Potentially polluting leaks or spillages occurring on site should be controlled and remediated in accordance with the documented and recorded control and remediation procedures.

A leak or spillage may not be polluting of itself but may lead to pollution if not properly controlled and remediated. Minor or insignificant leaks or spills may be covered by suitable 'housekeeping' routines, as a *de minimis* measure.

4. Action plan to deal with serious leaks and spillages:

Where the risk assessment identifies a significant risk of leaks or spillages which may lead to pollution of the environment, the working plan should specify an action plan to control and remediate those leaks or spillages within specified timescales.

References:

1. Statutory guidance:

WMP4 (4.27, 4.32, 4.45, 5.77-5.79)

2. Other guidance:

WP/4.153: FIRES ON SITE

FACILITY TYPE: All sites

RISK ASSESSMENT:

Burning of waste will not be permitted on the site unless it is a waste management operation specified in accordance with WP/1.110.

Fire prevention and control provisions should be made on all sites, except where the applicant justifies that they are not necessary on the basis of the risk assessment, taking account of the flammability of the wastes to be received, either by themselves or in combination with other wastes or materials on the site. The standard of fire prevention and control measures provided should meet the substantive risk posed by the site due to the waste types or permitted activities. These should be provided in accordance with the relevant requirements under Health and Safety legislation and of the local Fire Authority.

DESCRIPTION:

This section of the working plan should not include the fire prevention and control provisions made in accordance with the Health & Safety at Work, etc. Act 1974 or with the requirements of the local Fire Authority, but should reference them generally.

The working plan should detail the necessary actions to be taken to prevent or minimise pollution of the environment in the event of a fire in a Fire Action Plan, which may be specifically referenced and should include appropriate details of:

1. Fire control and elimination procedures;
2. Fire fighting equipment and materials;
3. Training;
4. Storage and disposal of residues;
5. Recording and reporting/notification procedures.

References:

1. **Statutory guidance:**

   WMP4 (4.27, 4.45)

2. **Other guidance:**

WP/4.210: WASTE ACCEPTANCE AND CONTROL SYSTEMS AND PROCEDURES

FACILITY TYPE: All sites

RISK ASSESSMENT:

Waste acceptance and control procedures must be provided for all sites, although the detailed requirements will depend upon the specified waste management operations and the permitted waste types, the risks presented to human health and the environment, and the engineered risk management provisions that are proposed.

DESCRIPTION:

This section of the working plan should provide details in accordance with the Generic Guidance on the Section 4 Specifications, and will include procedures for:

1. Waste Acceptance:

   Note:

   Where the waste types are such that sampling and testing of wastes is required, then the details of such sampling and testing should be covered separately in accordance with Specification WP/4.220: Waste Sampling and Testing;

   Requirements regarding permitted quantities and (for disposal to land) the loading rates of waste types are covered separately by Specification WP/1.120: Waste Types and Quantities.

2. Waste Control;

   Note: For landfill sites and other forms of disposal to land, requirements regarding the discharge and emplacement of wastes are covered by WP/4.520: Methods of Waste Discharge and Emplacement.

3. Waste Despatch (where appropriate);

4. Segregation of Incompatible Wastes.

The overall principle is that waste acceptance and control procedures should be fit for purpose and should be of a standard that provides the confidence:

a) that the type, composition and relevant hazardous properties of all incoming wastes will be reliably identified;

b) that those waste types will be handled in accordance with the hazards they present, so that the risks to human health and the environment identified in the supporting risk assessment will be prevented and minimised.

The working plan will include details of the following procedures, as appropriate to the specified waste management operations for the site. These procedures must be fully documented and recorded.

1. **Waste Acceptance**:

All wastes received at the site must be subjected to the relevant specified waste acceptance procedures, which should take account of the following:

1.1 **Waste Reception:**

Wastes which are undergoing inspection and testing between reception and acceptance on the site should be kept in clearly identified areas, segregated from wastes which have been accepted and are being stored, treated or disposed of on the site.

1.2 **Waste Inspection:**

All incoming wastes received on the site must be subjected to a documented and recorded inspection procedure to confirm the acceptance or rejection of the waste. The inspection of wastes should be based on documented and recorded characterisation and testing of wastes, based on the following 3-level hierarchy:

Level 1: Basic characterisation:

This constitutes a thorough determination, according to standardised analysis and behaviour-testing methods, of the characteristic properties of the waste, including hazardous characteristics.

All wastes should have been subject to basic characterisation prior to their reception at the site (in accordance with the duty of care under s.34 of the Environmental Protection Act 1990), sufficient to confirm their appropriateness to the list of permitted waste types (see Specification WP/1.120). There may be exceptions to this where the applicant justifies that either testing is impracticable or appropriate testing procedures and acceptance criteria are unavailable, or where there is overriding legislation. This should be discussed with the Agency licensing officer.

Level 2: Compliance testing:

This constitutes periodical testing by simpler standardised analysis and behaviour-testing methods to determine whether a waste complies with the licence conditions and/or specific reference criteria. The tests focus on key variables and behaviour identified by basic characterisation.

Compliance testing must be carried out on wastes received at the site at regular intervals or in accordance with a specified sampling regime. The requirements for this level of testing are covered under Specification WP/4.220, and should be discussed with the Agency licensing officer.

Level 3: On-site verification:

This constitutes rapid check methods to confirm that a waste is the same as that which has been subjected to compliance testing and that which is described in the accompanying documents. It may merely consist of a visual inspection of a load of waste before and after unloading or discharge at the site, although specific

hazardous waste types may require more rigorous checking. These checks must be carried out on-site unless otherwise justified by the applicant. The procedures should be discussed with the Agency licensing officer.

1.3 **Waste Acceptance:**

All wastes accepted on the site must be recorded. The details to be recorded should be discussed with the Agency licensing officer.

1.4 **Quarantine Storage and Rejection of Wastes:**

See 1.1 above. Wastes which are received at the site but rejected as a result of inspection or testing must be recorded.

2. **Waste Control**:

All wastes which are accepted on the site must be recorded and subjected to the relevant specified waste control procedures until they have been finally disposed of on the site or despatched from the site. These should take account of the following:

2.1 **Identification of Wastes:**

Wastes should be stored in clearly defined and identified areas or bays.

Waste containers (drums, IBCs. etc.) must be clearly labelled, identifying as a minimum the waste type, the date of arrival on site, and should have a unique identifier.

2.2 **Tracking of Wastes:**

Recording procedures should be maintained to ensure that all wastes accepted on the site are tracked through to disposal or despatch; that is, their identity, location and status are recorded and auditable.

2.3 **Storage of Wastes:**

Wastes should be stored in clearly defined and identified areas, and the boundaries of each area or storage bay should be clearly marked. There should be a clear separation between storage bays. Bays should be identified by appropriate signs or markers.

Drums or other mobile containers in which wastes are contained should be stored in such a manner that their identification labels may be readily examined, and the condition of each container may be readily inspected.

3. **Waste Despatch**:

3.1 **Inspection of Wastes for Despatch:**

All outgoing wastes despatched from the site must be subjected to a documented and recorded inspection procedure to confirm the description and characterisation of the waste.

3.2 **Waste Despatch and Recording:**

All wastes despatched from the site must be recorded. The details to be recorded should be discussed with the Agency licensing officer.

4. **Segregation of Incompatible Wastes**:

Wastes must be segregated to ensure separation of incompatible waste types; that is, wastes which may react if mixed to cause fires, explosions or the generation of toxic gases. Storage of incompatible wastes must be in physically segregated areas; that is, in separate areas, bays or buildings. Operational procedures and provisions should be described for ensuring segregation of incompatible waste types during storage and treatment, and their associated handling operations.

(Engineered segregation is covered by other site engineering and/or infrastructure conditions; ie. those specifying engineering requirements for: Bays; Compounds; Other barriers; Containers; Tanks; Landfill cells.)

Waste acceptance and control procedures must be carried out in suitably light conditions to ensure that errors of omission or commission are prevented. The applicant should describe any lighting that will be provided to ensure this objective is achieved.

References:

1. **Statutory guidance:**

   WMP4 (4.16-4.17, 5.76)

2. **Other guidance:**

WP/4.220: WASTE SAMPLING AND TESTING

FACILITY TYPE:

Sites permitted to take waste types which require Level 2 compliance testing of wastes to be carried out on-site prior to acceptance, or which require rigorous Level 3 checks to be carried out prior to acceptance (see Specification WP/4.210).

RISK ASSESSMENT:

Waste sampling and testing procedures will need to be specified where it is identified, on the basis of the risk assessment, that Level 2 compliance testing and/or more technically rigorous Level 3 on-site verification is required for any of the permitted waste types. This may be where such waste types cannot be reliably monitored for compliance by visual inspection alone, and those waste types are likely to contain substances which (in themselves or through the specified waste management operations on the site) pose significant risk to human health and the environment. Examples may include special wastes, liquid wastes, oil-bearing wastes and PCB-bearing wastes, or wastes which otherwise require detailed verification of conformity with the description provided in the documentation accompanying the waste.

Specific requirements imposed should be discussed with the Agency licensing officer, on the basis of the identified risks of not reliably identifying the detailed composition of the incoming wastes.

DESCRIPTION:

This section of the working plan should provide details in accordance with the Generic Guidance on the Section 4 Specifications, and should cover:

Level 2: Compliance testing:

This constitutes periodical testing by standardised analysis and behaviour-testing methods to determine whether a waste complies with the licence conditions and/or specific reference criteria. The tests focus on key variables and behaviour identified by basic characterisation.

Compliance testing must be carried out on wastes received at the site at regular intervals or in accordance with a specified sampling regime.

Level 3: On-site verification:

Where rapid check methods will be inadequate to confirm that a waste is the same as that which has been subjected to compliance testing and that which is described in the accompanying documents, and more rigorous compliance testing will be necessary.

The working plan should include details of the following:

1. Sampling schedules, methods and procedures;

2. Testing methods and procedures - specified levels of accuracy, precision and limits of detection;

3. Quality assurance of sampling and testing results;

4. Recording of sampling and testing;

5. Qualifications and/or competence of samplers and testers;

6. Facilities and equipment that will be provided, and which must be capable of accurately measuring specified parameters e.g. pH.

References:

1. Statutory guidance:

WMP4 (5.69-5.74)

2. Other guidance:

WP/4.230: WASTE QUANTITY MEASUREMENT SYSTEMS

FACILITY TYPE: All sites.

DESCRIPTION:

This section of the working plan should describe the means by which waste quantities accepted on and/or despatched from the site will be measured. Backup or contingency measuring systems may need to be specified.

The measuring systems will need to meet a specified accuracy and reliability, and should be subject to documented and recorded maintenance and calibration procedures at specified frequencies.

Where the means of measurement proposed is off-site and/or does not involve the use of a weighbridge, the applicant should justify the use of the proposed measures, with regard to accuracy and reliability.

References:

1. **Statutory guidance:**

   WMP4 (4.18-4.20, 4.43-4.45)

2. **Other guidance:**

WP/4.410: WASTE TREATMENT PROCESSES

FACILITY TYPE:

All sites where the specified waste management operations include engineered waste treatment processes (other than disposal to land), and, in order to ensure that they do not cause identified risks to human health and the environment outside the licensed site area and engineered containment, any of those waste treatment processes are identified as requiring specified standards for one or more of the following: design, construction, installation, commissioning, operation and maintenance.

RISK ASSESSMENT:

The risk assessment provided by the applicant in support of the application and the working plan should cover all the proposed waste treatment activities which are described in the working plan in accordance with Specification WP/1.110: Specified Waste Management Operations.

It is likely that such specified waste treatment processes will be those:

a) which are intended to receive wastes which are hazardous due to their being special wastes, or which are in a physical form which presents a significant identified risk to human health or the environment;

b) where the process itself potentially increases the risk to human health or the environment due to operational emissions, maloperations or accidental releases;

c) where the waste products are required to meet specified output standards in order to prevent consequent identified risks to human health and the environment.

The applicant should discuss this with the Agency licensing officer at an early stage.

DESCRIPTION:

Descriptions of all waste treatment activities should be given as specified under WP/1.110: Specified Waste Management Operations.

Where a waste treatment process is dependent upon plant or equipment which is provided to particular engineering standards, or upon the process being operated to particular standards, and these are distinct from or additional to the risk management provisions described under other sections, then the working plan should provide details for each of those processes, in accordance with the Generic Guidance on the Section 4 Specifications and the following :

1. Detailed descriptions of the specified waste treatment process (this should be cross-referenced in the general descriptions given under WP/1.110).

2. Description of waste treatment plant and equipment, covering engineered containment and control provisions (documented detailed designs should be referenced in support of, rather than as part of, the working plan; engineered containment details should be cross-referenced to details given under Working Plan Specifications; eg. WP/2.210:).

3. Description of construction or installation of waste treatment plant and equipment (documented programmes and procedures should be referenced in support of, rather than as part of, the working plan).

4. Description of testing and commissioning of waste treatment plant and equipment (documented and quality assured testing and commissioning documents and procedures should be referenced in support of, rather than as part of, the working plan).

5. Operational procedures (documented and quality assured procedures may be referenced in support of, rather than as part of, the working plan).

6. Maintenance schedules and procedures (documented and quality assured maintenance programmes and procedures may be referenced in support of, rather than as part of, the working plan).

7. Specified parameters and standards for quality control of inputs and process, and for quality assurance of outputs, covering:

   7.1 means and methods of monitoring for specified input and/or process and/or output parameters;

   7.2 monitoring programmes;

   7.3 QC/QA standards;

   7.4 QC/QA records.

8. Actions that will be taken in the event of adverse deviation of the process from the specified standards.

References:

1. **Statutory guidance:**

2. **Other guidance:**

WP/4.520: WASTE DISCHARGE AND EMPLACEMENT

FACILITY TYPE: Disposal to Land

The process of disposal should be carried out using specified methods of waste discharge and emplacement which meet specified standards. These standards should ensure that the discharge and emplacement of the permitted forms and types of waste do not cause identified risks to human health and the environment outside the licensed site area and engineered containment. The specified standards identified will relate to direct and immediate risks (via aerial releases) and to more indirect and longterm risks (via damage to the engineered containment and via effects on the performance of the site against its design specification).

RISK ASSESSMENT:

The risk assessment provided by the applicant in support of the application and the working plan should cover all the proposed waste treatment activities which are specified under WP/1.110: Specified Waste Management Operations.

The methods by which wastes are emplaced or discharged into a landfill are an essential aspect of the overall waste control procedures for the landfill site, and may have a significant effect on the design performance of the site and on the more direct and immediate risks presented by the permitted waste types to human health and the environment. The applicant should take account of the following in describing their waste discharge and emplacement procedures and standards.

1. Waste should always be emplaced or discharged in a manner which will not cause damage to the engineered risk management provisions. Where damage does occur, it should be rectified within a reasonable and effective timescale, and there should be recorded procedures for ensuring that this is done.

2. Waste should always be emplaced or discharged in a manner that will minimise the generation of aerial releases of gases, particulates and landfill odours within a level that will prevent pollution of the environment beyond the site boundary.

3. Where the site is designed and operated to reach physical and chemical stability through a longterm landfill disposal process, and this process is dependent upon identified standards of waste discharge and emplacement being achieved as an input to that process, then waste should be discharged and emplaced in a manner that will achieve those standards.

4. Where the permitted wastes include forms and types of waste which are incompatible in such a way as to cause identified significant risks to human health or the environment, then those wastes should be discharged or emplaced in a manner which will ensure their effective segregation.

DESCRIPTION:

This section of the working plan should include the following details of waste discharge and/or emplacement methods:

1. Operator's objectives, with reference to the environmental performance of the site;

2. Methods, eg: face tipping, onion skin tipping, working upwards;

3. Working areas: details of size, definition or delineation (eg. bunds, markers);

4. Means of ensuring quality of emplacement and minimisation of hazards; for example:

4.1 Waste compaction (minimum standards for compaction, which may be expressed in operational standards for specified plant and equipment);

4.2 Monitoring/checking of waste types (this should be covered by and cross-referenced under the information provided in accordance with Specification WP/4.210);

4.3 Particular requirements regarding methods of discharge or emplacement for special wastes or other identified wastes with particular requirements (these may be covered by and cross-referenced under the information provided in accordance with Specifications WP/4.701 to 4.706, as appropriate);

4.4 Segregation of incompatible wastes during and post discharge or emplacement (this may be covered by and should be cross-referenced under the information provided in accordance with Specification WP/4.210).

References:

1. Statutory guidance:

WMP4 (5.23-5.26)

2. Other guidance:

WMP26B (9.57-9.85)

WP/4.521: USE OF DAILY COVER AND INTERMEDIATE COVER

FACILITY TYPE: Disposal to Land

This section of the working plan should provide information on the following:

1. Daily cover; ie. the means by which deposited wastes shall be covered by or before the end of the working day; and

2. Intermediate cover; ie. the means by which cells or phases which cease operations for longer than a specified period, but before engineered final capping must be installed, are covered.

RISK ASSESSMENT:

1. Daily cover:

The means by which wastes are covered by the end of the working day are an essential aspect of the waste discharge and/or emplacement procedures for the landfill site, and may have a significant effect on the more direct and immediate risks presented by the permitted waste types to human health and the environment. The applicant should take account of and seek to prevent or minimise the following hazards in describing their daily cover procedures and standards:

1.1 windblown litter from the landfill surface;

1.2 odours from the landfill;

1.3 scavenging birds on the site or in the air space above it;

1.4 other forms of scavenging;

1.5 pest, vermin or insect infestations on the site;

1.6 fires on or within the site;

1.7 visual appearance of the site which may be seriously detrimental to the amenity of the locality.

2. Intermediate cover:

The means by which wastes are covered in cells or phases where operations have ceased for longer than a specified period, but before engineered final capping must be installed, may have a significant effect on the environmental performance of the landfill. The applicant should take account of the following hazards in describing their provisions for intermediate cover:

2.1 the water balance within the site should not be compromised;

2.2 pollution of the environment due to uncontrolled releases must be prevented;

2.3 the effectiveness of the pollution prevention systems must be maintained.

DESCRIPTION:

This section of the working plan should include the following details:

1. Daily cover:

1.1 Materials (including alternatives) and technical specifications;

1.2 Method(s) and standards of cover, including minimum and maximum depth of cover to be applied.

2. Intermediate cover:

2.1 Materials (including alternatives) and technical specifications, including minimum depth of cover to be applied;

2.2 Method(s) and standards of installation, including minimum and maximum thickness of cover, minimum gradient to ensure effective surface water drainage;

2.3 Maintenance schedules and procedures;

2.4 Method of removal prior to resumption of waste deposits.

References:

1. Statutory guidance:

2. Other guidance:

WP/4.701: ASBESTOS BEARING WASTES

FACILITY TYPE: Sites receiving and handling asbestos bearing wastes.

RISK ASSESSMENT:

The risks arising from asbestos bearing wastes should have been identified and assessed as part of the risk assessment of the permitted waste types, and these wastes will be subject to the risk management provisions described under the other sections of the working plan, in accordance with the relevant Specifications.

This section of the working plan should describe those provisions which will be made with regard to asbestos-bearing wastes and their particular hazards, over and above those for the other wastes that will be received and handled in accordance with the other sections of the working plan.

DESCRIPTION:

This section of the working plan may be included as specifically referenced parts of the other sections of the working plan, where these are relevant, or as a separate section which is cross-referenced in those other sections. The information given should include the following details, as appropriate to the site:

1. Waste acceptance and control procedures - specific measures for asbestos-bearing wastes (see WP/4.210 and WP/4.220), including storage and segregation, and associated containment provisions;

2. Handling of asbestos-bearing wastes during the specified waste management operations (see WP/1.120), including waste treatment processes (see WP/4.410) and waste discharge and emplacement procedures (see WP/4.520).

These details should be discussed with the Agency licensing officer.

References:

1. **Statutory Guidance:**

2. **Other guidance:**

   Code of Practice for Disposal of Asbestos (IWM, 1991)

3. **Other legislation:**

   Environmental Protection (Prescribed Processes and Substances) Regulations 1994.

WP/4.702: WASTE OILS AND OIL BEARING WASTES

FACILITY TYPE: Sites receiving and handling waste oils and oil-bearing wastes.

RISK ASSESSMENT:

The risks arising from waste oils and oil-bearing wastes should have been identified and assessed as part of the risk assessment of the permitted waste types, and these wastes will be subject to the risk management provisions described under the other sections of the working plan, in accordance with the relevant Specifications.

This section of the working plan should describe those provisions which will be made with regard to waste oils and oil-bearing wastes and their particular hazards, over and above those for the other wastes that will be received and handled in accordance with the other sections of the working plan.

DESCRIPTION:

This section of the working plan may be included as specifically referenced parts of the other sections of the working plan, where these are relevant, or as a separate section which is cross-referenced in those other sections. The information given should include the following details, as appropriate to the site:

1. Waste acceptance and control procedures - specific measures for waste oils and oil-bearing wastes(see WP/4.210 and WP/4.220), including storage and segregation, and associated containment provisions;

2. Handling of waste oils and oil-bearing wastes during the specified waste management operations (see WP/1.120), including waste treatment processes (see WP/4.410) and waste discharge and emplacement procedures (see WP/4.520).

These details should be discussed with the Agency licensing officer.

References:

1. **Statutory Guidance:**

2. **Other guidance:**

WP/4.703: FRAGMENTISER/SHREDDER WASTES

FACILITY TYPE: Sites receiving and handling fragmentiser/shredder wastes and metal bearing residues.

RISK ASSESSMENT:

The risks arising from fragmentiser/shredder wastes and metal bearing residues should have been identified and assessed as part of the risk assessment of the permitted waste types, and these wastes will be subject to the risk management provisions described under the other sections of the working plan, in accordance with the relevant Specifications.

This section of the working plan should describe those provisions which will be made with regard to fragmentiser/shredder wastes and metal bearing residues and their particular hazards, over and above those for the other wastes that will be received and handled in accordance with the other sections of the working plan.

DESCRIPTION:

This section of the working plan may be included as specifically referenced parts of the other sections of the working plan, where these are relevant, or as a separate section which is cross-referenced in those other sections. The information given should include the following details, as appropriate to the site:

1. Waste acceptance and control procedures - specific measures for fragmentiser/shredder wastes and metal bearing residues (see WP/4.210 and WP/4.220), including storage and segregation, and associated containment provisions;

2. Handling of fragmentiser/shredder wastes and metal bearing residues during the specified waste management operations (see WP/1.120), including waste treatment processes (see WP/4.410) and waste discharge and emplacement procedures, including any proposed use as a daily cover material (see WP/4.520 and WP/4.521).

These details should be discussed with the Agency licensing officer.

References:

1. **Statutory Guidance:**

2. **Other guidance:**

WP/4.704: LIQUID CFC-BEARING WASTES

FACILITY TYPE: Sites receiving and handling waste items (fridges and freezers) containing liquid CFCs.

RISK ASSESSMENT:

The risks arising from waste items containing liquid CFCs should have been identified and assessed as part of the risk assessment of the permitted waste types, and these wastes will be subject to the risk management provisions described under the other sections of the working plan, in accordance with the relevant Specifications.

This section of the working plan should describe those provisions which will be made with regard to waste items containing liquid CFCs and their particular hazards, over and above those for the other wastes that will be received and handled in accordance with the other sections of the working plan.

DESCRIPTION:

This section of the working plan may be included as specifically referenced parts of the other sections of the working plan, where these are relevant, or as a separate section which is cross-referenced in those other sections. The information given should include the following details, as appropriate to the site:

1. Waste acceptance and control procedures - specific measures for waste items (fridges and freezers) containing liquid CFCs (see WP/4.210 and WP/4.220), including storage and segregation, and associated containment provisions;

2. Handling of waste items (fridges and freezers) containing liquid CFCs during the specified waste management operations (see WP/1.120), including waste treatment processes (see WP/4.410).

These details should be discussed with the Agency licensing officer.

References:

1. **Statutory Guidance:**

2. **Other guidance:**

WP/4.705: PCB- BEARING WASTES

FACILITY TYPE: Sites receiving and handling PCB-bearing wastes.

RISK ASSESSMENT:

The risks arising from PCB-bearing wastes should have been identified and assessed as part of the risk assessment of the permitted waste types, and these wastes will be subject to the risk management provisions described under the other sections of the working plan, in accordance with the relevant Specifications.

This section of the working plan should describe those provisions which will be made with regard to PCB-bearing wastes and their particular hazards, over and above those for the other wastes that will be received and handled in accordance with the other sections of the working plan.

DESCRIPTION:

This section of the working plan may be included as specifically referenced parts of the other sections of the working plan, where these are relevant, or as a separate section which is cross-referenced in those other sections. The information given should include the following details, as appropriate to the site:

1. Waste acceptance and control procedures - specific measures for PCB-bearing wastes (see WP/4.210 and WP/4.220), including storage and segregation, and associated containment provisions;

2. Handling of PCB-bearing wastes during the specified waste management operations (see WP/1.120), including waste treatment processes (see WP/4.410).

These details should be discussed with the Agency licensing officer.

References:

1. **Statutory Guidance:**

2. **Other guidance:**

3. **Other legislation:**

   Directive 96/59 on the Disposal of PCBs and PCTs.

WP/4.706: CLINICAL WASTES

FACILITY TYPE: Sites receiving and handling clinical wastes.

RISK ASSESSMENT:

The risks arising from clinical wastes should have been identified and assessed as part of the risk assessment of the permitted waste types, and these wastes will be subject to the risk management provisions described under the other sections of the working plan, in accordance with the relevant Specifications.

This section of the working plan should describe those provisions which will be made with regard to clinical wastes and their particular hazards, over and above those for the other wastes that will be received and handled in accordance with the other sections of the working plan.

DESCRIPTION:

This section of the working plan may be included as specifically referenced parts of the other sections of the working plan, where these are relevant, or as a separate section which is cross-referenced in those other sections. The information given should include the following details, as appropriate to the site:

1. Waste acceptance and control procedures - specific measures for clinical wastes (see WP/4.210 and WP/4.220), including storage and segregation, and associated containment provisions;

2. Handling of clinical wastes during the specified waste management operations (see WP/1.120), including waste treatment processes (see WP/4.410) and waste discharge and emplacement procedures (see WP/520).

These details should be discussed with the Agency licensing officer.

References:

1. **Statutory Guidance:**

2. **Other guidance:**

WP/4.708: BATTERIES

FACILITY TYPE: Sites receiving and handling waste batteries.

RISK ASSESSMENT:

The risks arising from clinical wastes should have been identified and assessed as part of the risk assessment of the permitted waste types, and these wastes will be subject to the risk management provisions described under the other sections of the working plan, in accordance with the relevant Specifications.

This section of the working plan should describe those provisions which will be made with regard to waste batteries and their particular hazards, over and above those for the other wastes that will be received and handled in accordance with the other sections of the working plan.

DESCRIPTION:

This section of the working plan may be included as specifically referenced parts of the other sections of the working plan, where these are relevant, or as a separate section which is cross-referenced in those other sections. The information given should include the following details, as appropriate to the site:

1. Waste acceptance and control procedures - specific measures for waste batteries (see WP/4.210 and WP/4.220), including storage and segregation, and associated containment provisions;

2. Handling of waste batteries during the specified waste management operations (see WP/1.120), including waste treatment processes (see WP/4.410).

These details should be discussed with the Agency licensing officer.

References:

1. **Statutory Guidance:**

2. **Other guidance:**

SECTION 5: POLLUTION CONTROL, MONITORING AND REPORTING SYSTEMS

Scope:

The Specifications in this section cover the engineered systems and programmes that will be provided to monitor the waste body (in a landfill) and in the environment external to the waste body and/or engineered containment system for the site.

Generic Guidance on the Section 5 Specifications:

The systems provided in accordance with these specifications should meet the following generic requirements. (See the individual specifications for the detailed requirements under relevant headings.)

Risk Assessment:

The requirements for and details of the system should be based upon the site investigation and risk assessment provided in support of the application, taking into account the intended waste management operations and waste types described under Section 1 and the engineered containment that will be provided in accordance with Section 2.

Description:

This describes the information required in, or in support of, that section of the working plan. The general standard is that the working plan should provide the confidence that the system will be fit for purpose, and will meet the relevant standards that are required for environmental protection.

1. Engineered systems:

The general standard is that the working plan should provide the confidence that the system as provided, operated and maintained will be fit for purpose, and will meet the relevant standards that are required for environmental protection. More specific standards are given under the following individual headings, where relevant to the system.

The systems and programmes described should provide an accurate, valid and timely measure and record of the environmental performance of the engineered containment systems for the site.

1.1 Design:

A technically justified design must be provided for the system, based on the risk assessment supporting the application - this should include drawings and/or plans to appropriate scales and should provide the design details specified under this sub-heading.

The design of the relevant system will use information from the site investigation and risk assessment to indicate the design details required. The design will be detailed in the working plan and will include technical specifications for all materials used as well as scale drawing(s) of the proposed installations.

Where the applicant proposes to fully develop the detailed design of the site on a phased basis, such as for a phased landfill operation, an outline design for the system must be provided as a minimum, in sufficient detail to enable the design to be assessed and

licence conditions to be drafted. This should be discussed in detail with the Agency licensing officer.

Detailed design drawings and specifications should be included in or specifically referenced as part of the relevant section of the working plan, except where they may reasonably be expected to require ongoing development in response to operational conditions and the design is being carried out by a competent and suitably qualified engineer(s) under a detailed Construction Quality Assurance Plan (see below).

1.2. Construction:

A construction methodology which describes how the works will be undertaken.

Detailed method statements may be generally referenced in support of, rather than as part of, the relevant section of the working plan, where it is reasonable to expect it to require ongoing development in response to operational conditions and the work is being carried out under the fulltime supervision of competent and suitably qualified engineer(s) under a detailed Construction Quality Assurance Plan (see below).

1.3 Construction programme:

A construction programme must be provided, which details the time frame for the works, including any proposed phased development (this may be generally referenced in support of, rather than as part of, the working plan).

The timing of construction and/or installation may be dependent upon the phasing of the site.

For engineered monitoring systems external to engineered site containment, this should not be less than 12 months in advance of any waste deposit (or waste deposit in the next cell or phase to be filled if the landfill is in operation and in phased development).

1.4 Construction Quality Assurance Plan (CQAP):

A CQAP for the system must be provided which details the assurance and validation process for that system.

It may be considered that documented and controlled construction quality assurance plans and procedures may be generally referenced in support of, rather than as part of, the working plan, to enable reasonable flexibility. This should be discussed with the Agency licensing officer.

The CQAP should cover all permanent elements or fixed elements of the engineering and construction, unless otherwise justified by the applicant and agreed by the Agency. The CQAP should be supported by detailed method statements.

The CQAP and method statements must be drafted by competent and suitably qualified engineer(s) who shall also prepare all technical (and, where relevant, geotechnical) reports and provide validation of the specified engineering works. The detail of the qualifications and experience of the engineer(s) shall be submitted to by the Agency in writing.

Construction of the system must be supervised by competent and suitably qualified engineers. It is essential that full records are kept and made available on request for each element of the engineering and that close liaison is maintained with the Agency throughout the works.

The applicant/licence holder will be required to submit a Construction Quality Assurance Validation Report to the Agency following the completion of the engineering works. The report shall provide validation by the QA Engineer that all the works subject to CQA procedures have been carried out in accordance with the method statements, design and specification consented by the Agency in the relevant licence conditions and parts of the working plan. The content of the validation report and its supporting information (such as, records of as-built design detail, of construction records and of quality assurance checks and tests on 'fitness for purpose' of the engineering) should be discussed with your Agency licensing officer.

It may not be practicable for the system to be maintained or replaced during the lifetime of the site. This will usually apply to the engineered landfill containment system (including the liner and the final cap), the leachate collection and extraction system, and the landfill gas collection and extraction system. In these cases the Agency requires the construction quality assurance process to be supervised and validated by third party, independent engineers with suitable competencies and qualifications.

1.5 Operating procedures:

Details of how the engineering works will be operated and maintained. References to documented and controlled operating procedures in the relevant section of the working plan may be general. This should be discussed with your Licensing officer.

1.6 Maintenance procedures:

Details of how the engineering works will be maintained. This will include a maintenance programme or schedule, giving frequencies and subjects of inspection, with procedures, responsibilities, and actions and deadlines for repair or replacement in the event of failed, defective or damaged components. References to schedules should be specific; references to documented and controlled maintenance procedures in the relevant section of the working plan may be general. This should be discussed with your Licensing officer.

1.7 Engineering Records:

The design, construction, supervision/testing/validation, operation, and maintenance and repair of the system must be fully documented and recorded. The following information should be provided in or in support of the working plan:

Format and content of records;

Quality assurance of records.

In addition, the working plan should specify where the records will be kept and the data security measures (see Specification WP/7.100: Security and Availability of Records).

2 Monitoring and/or Sampling Programmes:

The monitoring and sampling programme must be designed and undertaken to measure specified determinands against specified frequencies, units and accuracies, and should be monitored against specified trigger levels.

The working plan should include the following information for each environmental monitoring and sampling programme, either in or specifically referenced in, the relevant section:

2.1. Monitoring and sampling points:

The locations and identities of monitoring points should be given on a plan of the site and its surroundings, drawn to an appropriate scale. These should be cross-referenced to the relevant engineering details, described above.

2.2 Determinands that will be monitored:

The determinands that will be monitored by measurement at the monitoring point, and/or by sampling and analysis, should be tabulated for each monitoring/sampling point, against minimum frequencies for monitoring/sampling, specified units and accuracies, and specified trigger levels.

2.3 Quality assurance of monitoring and sampling results:

Environmental monitoring and sampling should be carried out and recorded in accordance with a documented monitoring and sampling quality assurance plan. This should be described in the relevant section of the working plan, and should include:

1. the monitoring and sampling methodologies that will be used, including documented quality assurance procedures and documentation (this information may need to be specifically referenced as part of the working plan; this should be discussed with the Agency licensing officer);

2. the training and qualifications that will be provided/required for monitoring and sampling personnel;

3. the analytical methodologies that will be used, including documented quality assurance procedures and documentation (this information may need to be specifically referenced as part of the working plan; this should be discussed with the Agency licensing officer);

4. the identity of the laboratories performing the specified analyses, with their relevant competence/accreditation (this information may be generally referenced in support of, but separate from the working plan; this should be discussed with the Agency licensing officer).

2.4 Records of monitoring and sampling:

The results of the specified environmental monitoring and sampling programme must be fully documented and recorded should be submitted to the Agency in an agreed format, which should be given in this section of the working plan. The records should provide the following quality assured monitoring and sampling information:

1 Determinands monitored/sampled;

2 Specified details of measurements/samples to support analytical and QA requirements; eg. dates, times, locations, other relevant parameters;

3 Results of measurements/sample analyses, with error limits;

4 Interpretation and review of results against specified trigger levels;

5 Validation of accuracy and validity of results, by designated quality assurer.

2.5 Monitoring action plans:

The monitoring action plan should be designed and operated to ensure that any results of monitoring or sampling that exceed the specified trigger levels for the determinands being monitored are acted upon immediately to:

1 prevent hazard to human life, property or the environment outside the site boundary;
2 control and minimise any immediate risks of pollution of the environment;
3 ensure the immediate initiation of necessary investigations and management actions to identify, mitigate and remediate the causes of the exceedance.

The action plan should be effective, and should include training and, where necessary, periodic tests.

WP/5.100: LANDFILL GAS MONITORING AND REPORTING WITHIN THE WASTE OR ENGINEERED CONTAINMENT

FACILITY TYPE: Landfill gas monitoring within the waste body should be provided for all landfills, unless otherwise justified by the applicant on the basis of the supporting risk assessment, taking into account the potential of the waste types to generate landfill gas.

(Landfill gas monitoring outside the waste body and engineered containment, to monitor the performance of the engineered containment and landfill gas management systems, is covered by Specification WP/5.101.)

RISK ASSESSMENT:

There will be a requirement for a minimum number of monitoring points within the waste body or engineered containment, unless the risk assessment demonstrates, to agreed criteria, that there will be negligible risk from the site. The extent of the landfill gas monitoring system should be justified to the Agency upon the basis of the risk assessment of the site provided by the applicant in support of the working plan, the proposed waste operations, the proposed waste types, and the quality of the waste acceptance and control procedures provided under WP/4.210.

The landfill gas monitoring points will constitute part of the engineered landfill gas management system, as described in the working plan in accordance with Specification WP/2.340. On sites where the risks to human health and the environment are low but not negligible, the landfill gas monitoring system may constitute the whole of the landfill gas management system so described, unless and until the results of the landfill gas monitoring programme exceed specified trigger levels. In these cases an outline design of the potential external landfill gas monitoring systems (see Specification WP/5.101) and/or landfill gas collection, extraction and disposal systems (see WP/2.340) should be provided, with a costed outline programme for provision. The implementation of such a system should then constitute one of the actions specified under the landfill gas action plan (see below).

The overall principle is that the landfill gas monitoring regime must be designed and undertaken to accurately and reliably measure specified determinands against defined standards for frequencies, units and accuracies, in order to representatively characterise the gassing regime.

DESCRIPTION:

This section of the working plan should describe the landfill gas monitoring and sampling programme, providing details in accordance with the Generic Guidance on the Section 5 Specifications. The following should also be taken into account:

1. The quality assured results should include a monthly/periodic review and interpretation of the results against the design lifetime for the site and the projected waste stabilisation curve.

2. The specified trigger levels should include concentration and flowrate of landfill gas, and should instigate a specified programme for providing a landfill gas collection and extraction system, or agreed alternatives, to the outline design.

The details should be discussed with the Agency licensing officer.

References:

1. **Statutory guidance:**

   WMP4 (Chapter 6 and Appendix C)

2. **Other guidance:**

   WMP26A;
   WMP 26B;
   WMP27 (Chap. 7);

   'Monitoring of Landfill Gas' (IWM publication).

WP/5.101: LANDFILL GAS MONITORING AND REPORTING EXTERNAL TO THE WASTE OR THE ENGINEERED CONTAINMENT

FACILITY TYPE: Landfill gas monitoring external to the waste body or engineered containment should be provided for all landfills, unless otherwise justified by the applicant on the basis of the supporting risk assessment, taking into account the potential of the waste types to generate landfill gas.

(Landfill gas monitoring within the waste body or engineered containment is covered by Specification WP/5.100.)

RISK ASSESSMENT:

The requirement for a landfill gas monitoring system external to the waste or to the engineered containment should be based upon a site-specific landfill gas risk assessment provided in support of the application. An engineered landfill gas monitoring system will be required where the site design is based upon engineered landfill containment systems (see Specification WP/2.320).

The landfill gas monitoring system and programme should be developed through the following landfill gas risk assessment and management process:

1. A landfill gas risk assessment of the site, submitted in support of the application and working plan; this should include the following:

1.1 a detailed desk top study and preliminary identification of landfill gas hazards, pathways and targets;

1.2 a preliminary site investigation with factual and interpretative reports;

1.3 a main site investigation with factual and interpretative reports incorporating a qualitative and quantitative landfill gas risk assessment:

1.3.1 a geological investigation should be carried out to establish the nature of the surrounding geology and in particular the presence of any permeable strata;

1.3.2 the locations, spacing and design of the landfill gas monitoring points should be determined using a risk assessment approach and should take account of the local geology and natural and man-made gas migration routes, the anticipated depth of the waste, and the presence of any potential landfill gas migration receptors in or above the ground surrounding the site.

2. Specification and inclusion in the working plan of the landfill gas monitoring system:

Landfill gas monitoring must be installed at suitable locations around the periphery of the landfill containment system.

3. Specification in the working plan of the landfill gas monitoring programme:

There will be a requirement for a minimum number of monitoring points within the waste body or engineered containment, unless the risk assessment demonstrates, to agreed

criteria, that there will be negligible risk from the site. The extent of the landfill gas monitoring system should be justified to the Agency upon the basis of the risk assessment of the site provided by the applicant in support of the working plan, the proposed waste operations, the proposed waste types, and the quality of the waste acceptance and control procedures provided under WP/4.210.

DESCRIPTION:

This section of the working plan should describe the landfill gas monitoring and sampling system and programme external to the waste or engineered containment, providing details in accordance with the Generic Guidance on the Section 5 Specifications. The following should also be taken into account:

1. The working plan should provide the confidence that the landfill gas monitoring system will be fit for purpose and will be designed, constructed, operated and maintained to:

   1.1 permit at any time an accurate and reliable determination of landfill gas quality at each monitoring point to be measured and recorded;

   1.2 enable gas flow rates and differential pressure trends to be measured at each monitoring point when required;

   1.3 enable representative samples of the landfill gas to be taken for further analysis when required from each monitoring point;

   1.4 withstand physical damage and chemical attack in the subground environment;

   1.5 be secure to prevent unauthorised access and entry of foreign matter.

2. The landfill gas monitoring programme must accurately and reliably measure specified determinands against defined standards for frequencies, units and accuracies, in order to representatively characterise the gassing regime.

3. The design for the monitoring system should include specifications for locations of monitoring points, spacings between monitoring points, depths of monitoring points, and design and construction of monitoring points.

4. The timing of gas monitoring point installation will be dependent upon the phasing of the landfill, but should not be less than 12 months in advance of any waste deposit (or waste deposit in the next cell or phase to be filled if the landfill is in operation and in phased development).

5. The landfill gas monitoring programme should include monitoring of confined and enclosed spaces on the site, e.g. underfloor areas in site offices.

References:

1. **Statutory guidance: WMP4 (Chapter 6 and Appendix C)**

2. **Other guidance: WMP26A and B; WMP27 (Chap. 7); 'Monitoring of Landfill Gas' (IWM publication).**

WP/5.200: LEACHATE MONITORING AND REPORTING

FACILITY TYPE: Disposal to Land - non-inert, co-disposal and 'bioreactor-design' sites.

Leachate monitoring should be provided for all landfills with an engineered leachate management system (see Specification WP/2.330.)

DESCRIPTION:

This section of the working plan should describe the leachate monitoring and sampling programme, providing details in accordance with the Generic Guidance on the Section 5 Specifications. The following should also be taken into account:

1. The leachate monitoring programme should accurately and reliably measure specified determinands against defined standards for frequencies, units and accuracies, in order to representatively characterise the leachate regime.

2. The quality assured results should include a monthly/periodic review and interpretation of the results against the design lifetime for the site and the projected waste stabilisation curve.

3. The leachate monitoring programme must include monitoring of depths of leachate at specified monitoring points according to specified schedules. Depth monitoring must be documented and recorded, with specified actions to maintain depths below specified trigger levels or the maximum permitted levels.

The details should be discussed with the Agency licensing officer.

References:

1. **Statutory guidance:**

   WMP4 (Chapter 6 and Appendix C)

2. **Other guidance:**

   WMP26A and B

WP/5.400: GROUNDWATER MONITORING AND REPORTING SYSTEMS

FACILITY TYPE: All sites with potential risk to groundwater.

1. Disposal to Land & Treatment Lagoons:

Groundwater monitoring is a necessary requirement for landfills, except where it is agreed that the supporting risk assessment demonstrates that there is no risk of leachate generation or ground contamination on basis of proposed waste types. It must be provided for landfill sites where containment of leachate generating wastes is required for the protection of the environment (see Specification WP/2.320.)

2. Keeping, Treating, Disposal other than to Landfill:

Groundwater monitoring may be required by the Agency on the basis of an assessment of the risk to groundwater from the site, taking into account waste operations, waste types, proximity and vulnerability of groundwater, and engineered containment provisions. This should be discussed with the Agency licensing officer.

RISK ASSESSMENT:

The requirement for a groundwater monitoring system external to the waste or to the engineered containment should be based upon a site-specific groundwater risk assessment provided in support of the application. An engineered groundwater monitoring system will be required where the site design is based upon engineered landfill containment systems (see Specification WP/2.320).

The groundwater monitoring system and programme should be developed through the following groundwater risk assessment and management process:

1. A groundwater risk assessment of the site, submitted in support of the application and working plan; this should include the following:

1.1 a detailed desk top study and preliminary identification of the groundwater regime;

1.2 a preliminary site investigation with factual and interpretative reports;

1.3 a main site investigation with factual and interpretative reports incorporating a qualitative and quantitative groundwater risk assessment:

1.3.1 a hydrogeological investigation should be carried out to establish the nature of the surrounding groundwater regime;

1.3.2 the locations, spacing and design of the groundwater monitoring points should be determined using a risk assessment approach and should take account of the local hydrogeology and groundwater regime.

2. Specification and inclusion in the working plan of the groundwater monitoring system:

   Groundwater monitoring must be installed at suitable locations around the periphery of the landfill containment system.

3. Specification in the working plan of the landfill gas monitoring programme:

   There will be a requirement for a minimum number of monitoring points external to the waste body or engineered containment, unless the risk assessment demonstrates, to agreed criteria, that there will be negligible risk to groundwater from the site.

DESCRIPTION:

This section of the working plan should describe the groundwater monitoring and sampling system and programme, providing details in accordance with the Generic Guidance on the Section 5 Specifications. The following should also be taken into account:

1. The working plan should provide the confidence that the groundwater monitoring system will be fit for purpose and will be designed, constructed, operated and maintained to:

1.1 permit at any time an accurate level of groundwater at each monitoring point to be measured and recorded;

1.2 enable groundwater flow rates to be measured at each monitoring point when required;

1.3 enable representative samples of groundwater to be taken for further analysis when required from each monitoring point;

1.4 withstand physical damage and chemical attack in the subground environment;

1.5 be secure to prevent unauthorised access and entry of foreign matter.

2. Not less than 3 groundwater monitoring boreholes shall be provided, of which one shall be upgradient from the site and two shall be downgradient from the site measured against the groundwater flow.

3. The groundwater monitoring programme must accurately and reliably measure specified determinands against defined standards for frequencies, units and accuracies, in order to representatively characterise the groundwater quality regime.

4. The design for the monitoring system should include specifications for locations of monitoring points, spacings between monitoring points, depths of monitoring points, and design and construction of monitoring points.

5. The timing of groundwater monitoring point installation may be dependent upon the phasing of the landfill, but should not be less than 12 months in advance of any waste deposit (or waste deposit in the next cell or phase to be filled if the landfill is in operation and in phased development).

These details should be discussed with the Agency licensing officer.

References:

1. **Statutory guidance:**

   WMP4 (Chapter 6 and Appendix C)

2. **Other guidance:**

   WMP26A and B

WP/5.500: SURFACE WATER QUALITY MONITORING AND REPORTING

FACILITY TYPE: All sites with potential risk to surface water.

1. Disposal to Land & Treatment Lagoons:

Surface water monitoring is a necessary requirement for landfills, except where it is agreed that the supporting risk assessment demonstrates that there is no risk of surface water contamination.

2. Keeping, Treating, Disposal other than to Landfill:

Surface water monitoring may be required by the Agency on the basis of an assessment of the risk to surface water from the site, taking into account waste operations, waste types, proximity and vulnerability of surface water, and engineered containment provisions. This should be discussed with the Agency licensing officer.

RISK ASSESSMENT:

The requirement for surface water monitoring should be based upon a site-specific surface water risk assessment provided in support of the application.

DESCRIPTION:

This section of the working plan should describe the surface water monitoring and sampling programme, providing details in accordance with the Generic Guidance on the Section 5 Specifications. The following should also be taken into account:

1. The surface water monitoring points must enable representative samples of surface water to be taken for further analysis when required.

2. For each surface water body monitored which is under flow, not less than 2 monitoring points should be provided, of which one should be upstream from the site and one should be downstream from the site.

3. The surface water monitoring programme must accurately and reliably measure specified determinands against defined standards for frequencies, units and accuracies, in order to representatively characterise effects of the site on surface water quality.

These details should be discussed with the Agency licensing officer.

References:

1. Statutory guidance:

WMP4 (Chapter 6 and Appendix C)

2. Other guidance:

WMP26A and B.

WP/5.600: MONITORING AND RECORDING OF METEOROLOGICAL CONDITIONS

FACILITY TYPE:

Landfill or other sites where meteorological measurements are identified as necessary to support environmental monitoring or operational controls.

This requirement should be discussed with the Agency licensing officer.

DESCRIPTION:

This section of the working plan should provide details of the meteorological monitoring programme, which may be provided on-site or, where appropriate, via a specified third party with appropriate monitoring coverage. This should be discussed with the Agency licensing officer.

Details should include the following:

1. Meteorological conditions monitoring points: these should enable accurate measures of the meteorological conditions to be taken or obtained at the specified times.

2. Meteorological conditions monitoring programme: this should measure specified determinands against, where appropriate, specified trigger levels; examples may be windspeed, rainfall, barometric pressure, temperature.

3. Meteorological conditions action plan: this should ensure that when any measurements exceed specified trigger levels during (and, if necessary, outside) operational hours, they are acted upon immediately to control and minimise any immediate risks of pollution of the environment, harm to human health or serious detriment to the amenity of the locality. For example, windspeeds above a specified limit may require temporary cessation of waste discharge or emplacement on a landfill site.

References:

1. **Statutory guidance:**

   WMP4 (Chapter 6 and Appendix C).

2. **Other guidance:**

SECTION 6: POLLUTION CONTROL, MONITORING AND REPORTING SYSTEMS

Scope:

The Specifications in this section cover the systems and programmes that will be provided to prevent and control pollution of the environment that may manifest itself directly, causing or potentially causing harm to human health and/or serious detriment to the amenity of the locality.

Where the assessed risk to identified targets is significant, there may be a requirement under certain of these Specifications to provide technical monitoring and/or sampling. This should be discussed with the Agency licensing officer at an early stage.

Generic Guidance on the Section 6 Specifications:

The systems provided in accordance with these specifications should meet the following generic requirements. (See the individual specifications for the detailed requirements under relevant headings.)

Risk Assessment:

The requirements for and details of the system should be based upon the site investigation and risk assessment provided in support of the application, taking into account the intended waste management operations and waste types described under Section 1, the engineered containment that will be provided in accordance with Section 2, and the operational controls that will be provided in accordance with Section 4. As such, they may consist in whole or in part of the systems described under those other Sections and Specifications. Where this is the case, it should be explicitly stated and cross-referenced to the appropriate section of the working plan.

Technical monitoring systems (ie. fixed monitoring and sampling points, with technically based monitoring and/or sampling programmes) should be provided where the risk assessment justifies a particular need.

Description:

This describes the information required in, or in support of, that section of the working plan. The general standard is that the working plan should provide the confidence that the system will be fit for purpose, and will meet the relevant standards that are required for environmental protection.

1. Prevention and Control Measures:

1.1 Engineered containment and control systems:

These will be described under the other relevant sections of the working plan and should be cross-referenced as such.

1.2 Operational or procedural controls:

These will usually be covered by appropriate provisions under the other relevant sections of the working plan and should be cross-referenced as such.

1.3 Simple operational monitoring:

This should provide robust and immediate feedback at a suitable frequency, such as visual or olfactory monitoring by designated staff at designated locations at specified daily or high risk times, and must ensure adequate control of identified risks.

2 Monitoring and/or Sampling Programmes:

Where a technical monitoring and sampling programme is required, it should be designed and undertaken to measure specified determinands against specified frequencies, units and accuracies, and should be monitored against specified trigger levels.

The working plan should include the following information for each environmental monitoring and sampling programme, either in or specifically referenced in, the relevant section:

2.1. Monitoring and sampling points:

The locations and identities of monitoring points should be given on a plan of site and its surroundings, drawn to an appropriate scale. These should be cross-referenced to the relevant engineering details, described above.

2.2 Determinands that will be monitored:

The determinands that will be monitored by measurement at the monitoring point, and/or by sampling and analysis, should be tabulated for each monitoring/sampling point, against minimum frequencies for monitoring/sampling, specified units and accuracies, and specified trigger levels.

2.3 Quality assurance of monitoring and sampling results:

Environmental monitoring and sampling should be carried out and recorded in accordance with a documented monitoring and sampling quality assurance plan. This should be described in the relevant section of the working plan, and should include:

1. the monitoring and sampling methodologies that will be used, including documented quality assurance procedures and documentation (this information may need to be specifically referenced as part of the working plan; this should be discussed with the Agency licensing officer);

2. the training and qualifications that will be provided/required for monitoring and sampling personnel;

3. the analytical methodologies that will be used, including documented quality assurance procedures and documentation (this information may need to be specifically referenced as part of the working plan; this should be discussed with the Agency licensing officer);

4. the identity of the laboratories performing the specified analyses, with their relevant competence/accreditation (this information may be generally referenced in support of, but separate from the working plan; this should be discussed with the Agency licensing officer).

2.4 Records of monitoring and sampling:

The results of the specified environmental monitoring and sampling programme must be fully documented and recorded should be submitted to the Agency in an agreed format, which should be given in this section of the working plan. The records should provide the following quality assured monitoring and sampling information:

1 Determinands monitored/sampled;

2 Specified details of measurements/samples to support analytical and QA requirements; eg. dates, times, locations, other relevant parameters;

3 Results of measurements/sample analyses, with error limits;

4 Interpretation and review of results against specified trigger levels;

5 Validation of accuracy and validity of results, by designated quality assurer.

2.5 Monitoring action plans:

The monitoring action plan should be designed and operated to ensure that any results of monitoring or sampling that exceed the specified trigger levels for concentration and flowrate of landfill gas are acted upon immediately to:

1 prevent hazard to human life or property outside the site boundary;
2 control and minimise any immediate risks of pollution of the environment;
3 ensure the immediate initiation of necessary investigations and management actions to identify, mitigate and remediate the causes of the exceedance.

The action plan should be effective, and should include training and, where necessary, periodic tests.

WP/6.010: CONTROL, MONITORING AND REPORTING OF DUSTS, FIBRES AND PARTICULATES

FACILITY TYPE: All sites handling dry wastes consisting of or likely to include significant proportions of powders, dusts, fibres or particulates.

1. **Control of Dust and Particulates:** The applicant should provide specified prevention and minimisation measures where there is an identified risk of dust/particulate generation.

2. **Monitoring of Dust and Particulates:** The applicant may the be required to provide scientific/technical monitoring of specified emissions, where justified by a site-specific risk assessment, taking into account the waste operations, waste types, the control measures that are provided, and the potential for pollution of the environment, harm to human health or serious detriment to the local amenity. This should be discussed with the Agency licensing officer.

RISK ASSESSMENT:

An identified risk of aerial emissions of dusts, fibres or particulates is sufficient to justify the provision of prevention and control measures. This should be taken account of in the risk assessment supporting the application.

Scientific/technical monitoring against numerical limits may be required where it is justified on the basis of a risk assessment; for example, where wastes containing PCB's, heavy metals or asbestos are to be subject to waste management operations which are likely to give rise to aerial emissions beyond the site boundary. This should be discussed with the Agency licensing officer.

DESCRIPTION:

This section of the working plan should describe the measures to be provided to prevent and control releases of dusts, fibres and particulates beyond the site boundary, and, where required, the scientific/technical monitoring programme. Details should be provided in accordance with the Generic Guidance on the Section 6 Specifications. The following should also be taken into account:

1. Control of Dust and Particulates:

1.1 The specified prevention and control measures may be covered by other sections of the working plan in accordance with other Specifications, in which case, they should be specifically cross-referenced in this section. In these cases, the specified measures may serve more than one objective or risk management provision. The following are examples of such cross-referenced provisions:

Measures	Specifications	Requirements
Prevention:		
Control of waste types	eg. No wastes consisting of or containing significant proportions of dusts, fibres or particulates.	*As specified under [WP/1.120].*

Measures	Specifications	Requirements
	Handling of wastes.	*As specified under [WP/4.210].*
	Discharging or emplacing wastes.	*As specified under [WP/4.520].*
Physical containment:	eg. Sealed containers	*As specified under [WP/2.230], [WP/2.232], [WP/4.151].*
	Covered buildings	*As specified under [WP/2.210].*
	Landfill daily cover	*As specified under [WP/4.521].*
Monitoring:	Visual monitoring by specified person	eg. once per working day; three times (start, middle, finish) every working day. Record of results to be kept in site diary.
	Scientific/technical monitoring should only be required where necessary.	
Actions:	Implement specified preventive/control measures	eg. water sprays, ventilation, filtering.

1.2 Simple operational monitoring will be required. The concentration of airborne dust, fibres and particulates originating from the site must not exceed an agreed standard at the site boundary, as monitored on a specified basis by simple visual means.

2. Monitoring of Dust and Particulates:

2.1 The concentration of airborne dust, fibres and particulates originating from the site should not exceed an agreed and enforceable level or concentration at the site boundary, as measured by a recognised or agreed methodology.

2.2 Each monitoring point should enable representative samples of dusts, fibres and particulates to be taken for further analysis when required.

2.3 The airborne dust, fibres and particulates monitoring programme should be designed and operated to measure the necessary and practicable determinands against enforceable standards. These should be determined on the basis of the risk assessment.

3. Dust, fibres and particulates action plan:

The dust, fibres and particulates action plan should ensure that when any measurements exceed the specified trigger levels during (and, if necessary, outside) operational hours they are acted upon immediately to control and minimise any immediate risks of pollution of the environment, harm to human health or serious detriment to the amenity of the locality.

References:

1. **Statutory Guidance:**

   WMP4 (paras 4.20, 4.36 - 4.37).

2. **Other guidance:**

WP/6.020: CONTROL OF ODOURS

FACILITY TYPE:

All sites handling wastes which, due to their constituents or their handling, have significant potential to cause offensive odours.

The applicant should provide specified prevention and minimisation measures where there is a risk of offensive odours to identified targets beyond the site boundary.

RISK ASSESSMENT:

An identified risk of offensive odours to sensitive targets beyond the site boundary is sufficient to justify the provision of prevention and control measures. This should be taken account of in the risk assessment supporting the application.

Simple olfactory monitoring at specified locations and times will be required.

DESCRIPTION:

This section of the working plan should describe the measures to be provided to prevent and control releases of offensive odours, providing details in accordance with the Generic Guidance on the Section 6 Specifications. The following should also be taken into account:

1. The specified prevention and control measures may be covered by other sections of the working plan in accordance with other Specifications, in which case, they should be specifically cross-referenced in this section. In these cases, the specified measures may serve more than one objective or risk management provision. The following are examples of such cross-referenced provisions:

Measures	Specifications	Requirements
Prevention:		
Control of waste types	eg.	
	No wastes consisting of or containing substances with significant hazard of offensive odour.	*As specified under [WP/1.120].*
	Handling of wastes.	*As specified under [WP/4.210].*
	Discharging or emplacing wastes.	*As specified under [WP/4.520].*
Physical containment:	eg.	
	Sealed containers	*As specified under [WP/4.151].*
	Covered buildings	*As specified under [WP/2.210].*

Measures	Specifications	Requirements
	Landfill daily cover	*As specified under [WP/4.521].*
Monitoring:	Olfactory monitoring by specified person	eg. once per working day; three times (start, middle, finish) every working day. Record of results to be kept in site diary.
Actions:	Implement specified preventive/control measures	eg. containment of wastes, water/scent sprays, ventilation, filtering.

2. Simple operational monitoring will be required.

References:

1. **Statutory Guidance:**

   WMP4 (4.29)

2. **Other guidance:**

WP/6.030: CONTROL AND MONITORING OF NOISE

FACILITY TYPE: All sites where there is an identified risk to sensitive targets beyond the site boundary due to the generation of loud and persistent or recurring noise by the waste management operations.

RISK ASSESSMENT:

An identified risk of loud and persistent or recurring noise to sensitive targets beyond the site boundary is sufficient to justify the provision of prevention and control measures. This should be taken account of in the risk assessment supporting the application.

Technical monitoring against numerical limits may be required. This should be discussed with the Agency licensing officer.

DESCRIPTION:

This section of the working plan should describe the measures to be provided to prevent and control loud and persistent or recurring noise beyond the site boundary which might otherwise adversely affect identified targets. Details should be provided in accordance with the Generic Guidance on the Section 6 Specifications. The following should also be taken into account:

1. The specified prevention and control measures may be covered by other sections of the working plan in accordance with other Specifications, in which case, they should be specifically cross-referenced in this section. In these cases, the specified measures may serve more than one objective or risk management provision. The following are examples of such cross-referenced provisions:

Measures	Specifications	Requirements
Operational procedures:	eg.	
	Handling of wastes.	*As specified under [WP/4.210].*
	Discharging or emplacing wastes.	*As specified under [WP/4.520].*
Physical containment:	eg.	
	Covered buildings	*As specified under [WP/2.210].*
	Noise bunds	Describe under this section.
	Silencers on plant and equipment	Describe under this section.
Monitoring:	Investigation of complaints	Monitoring of noise at specified locations using specified method. Record of complaints, results and actions to be kept in site diary.

2. Simple operational monitoring will be required. Noise levels from the site must not exceed an agreed standard at specified points, as measured by a specified methodology.

3. The level of noise originating from the site should not exceed an agreed standard at the site boundary, which may be monitored on a specified basis by practicable means.

4. The noise action plan should ensure that complaints of loud and persistent or recurring noise from the waste operations are recorded in the site diary and specified actions are taken and recorded to investigate and remedy the situation.

References:

1. **Statutory Guidance:**
   WMP4 (4.38 - 4.39);

2. **Other Guidance:**

   WMP26B (9.91 - 9.92);

   BS4142 : 1997 'Method for Rating industrial noise affecting mixed residential and industrial areas'.

WP/6.040: CONTROL OF PESTS

FACILITY TYPE:

All sites where the waste types, taking into account the waste operations, are liable to infestation by pests, including vermin or insects.

RISK ASSESSMENT:

The applicant should address the risk of pest infestation in the supporting risk assessment taking into account the waste types to be received and the storage and disposal operations to which they will be subject.

DESCRIPTION:

This section of the working plan should describe the measures to be provided to prevent and control infestations by pests, including vermin and insects, that are liable to occur, taking account of the waste types and the conditions and timescales in which they will be on-site and exposed.

The specified prevention and control measures may be covered by other sections of the working plan in accordance with other Specifications, for example, by the use of daily cover for operational landfill areas; in which case, they should be specifically cross-referenced in this section. In these cases, the specified measures may serve more than one objective or risk management provision.

The procedures for storage and disposal of wastes should ensure that the waste is stored, contained or covered in such a manner as to reduce the risk of infestations of the waste by pests.

Procedures for monitoring and control of pests should ensure that wastes are inspected for likely pest infestations on a regular basis, and that, when infestations of waste are detected, specified actions are taken to remedy the situation.

Pest prevention methods may include, where appropriate, landfill cover and pesticides. Where regular use of pesticides is proposed, the types will need to be specified and their risks to the environment should be taken into account.

References:

1. **Statutory Guidance:**

   WMP4 (4.29);

2. **Other guidance:**

WP/6.041: CONTROL OF BIRDS AND OTHER SCAVENGERS

FACILITY TYPE:

All sites where the waste types, taking into account the waste operations, are liable to scavenging by birds and other scavengers. (scavenging by humans and livestock should be prevented by the site security provisions described in the working plan in accordance with Specification WP/3.500.)

RISK ASSESSMENT:

The applicant should address the risks of scavenging in the supporting risk assessment taking into account the waste types to be received and the storage and disposal operations to which they will be subject. Preventive measures and controls should be provided where the permitted waste types and nature of activities are likely to attract birds and other scavengers, and where scavengers likely to be attracted to site in proximity to designated habitat under Habitats Directive. They must be provided where birds are likely to be attracted to a site which is situated in air protection zone.

DESCRIPTION:

This section of the working plan should describe the measures to be provided, over and above the routine site security provisions described in the working plan in accordance with Specification WP/3.500, to prevent and control scavenging by birds and other scavengers (other than humans and livestock). These measures should take account of the waste types and the conditions and timescales in which they will be on-site and exposed.

The specified prevention and control measures may be covered by other sections of the working plan in accordance with other Specifications, for example, by the use of daily cover for operational landfill areas; in which case, they should be specifically cross-referenced in this section. In these cases, the specified measures may serve more than one objective or risk management provision.

The procedures for storage and disposal of wastes should ensure that the waste is stored, contained or covered in such a manner as to reduce the risk of scavenging.

Scavenging prevention methods may include, where appropriate, landfill cover, netting or appropriate effective scaring methods.

References:

1. **Statutory Guidance:**

2. **Other guidance:**

WP/6.050: CONTROL OF LITTER

FACILITY TYPE:

All sites where the waste types, taking into account the waste operations, pose a risk of litter outside the site boundary.

RISK ASSESSMENT:

The applicant should address the risks of litter arising from the site outside the site boundary in the supporting risk assessment, taking into account the waste types to be received and the storage and disposal operations to which they will be subject. Preventive measures and controls should be provided where the permitted waste types and nature of activities are likely to generate litter.

DESCRIPTION:

This section of the working plan should describe the measures to be provided to prevent and control litter from the site going beyond the site boundary. These measures should take account of the waste types and the conditions in which they will be on-site and exposed.

The specified prevention and control measures may be covered by other sections of the working plan in accordance with other Specifications, for example, by the use of daily cover for operational landfill areas; in which case, they should be specifically cross-referenced in this section. In these cases, the specified measures may serve more than one objective or risk management provision.

The procedures for storage and disposal of wastes should ensure that the waste is stored, contained or covered in such a manner as to reduce the risk of windblown litter.

Litter prevention and control methods may include, where appropriate, general housekeeping procedures, landfill cover or netting, and should specify appropriate inspection frequencies, cleanup procedures and action procedures, where appropriate, for high wind conditions.

The working plan should provide the confidence that the controls described and so provided will meet agreed standards.

These details should be discussed with the Agency licensing officer.

References:

1. **Statutory Guidance:**

2. **Other guidance:**

SECTION 7: SITE RECORDS

Scope:

The Specifications given in this section cover the more general or 'umbrella' provisions regarding the keeping, security and availability of those records which should be kept in accordance with or in support of the other provisions described by the working plan and referenced supporting information.

WP/7.100: SECURITY AND AVAILABILITY OF RECORDS

FACILITY TYPE: All sites.

DESCRIPTION:

This section of the working plan should describe:

1. the location(s) at which each of the required records shall be kept; this should be a site office, unless otherwise justified. The specified locations should in any case be within the Agency Area or within easy daily/routine access of the Agency Area office for the site;

2. the form and means by which they shall be maintained and kept secure from loss, damage or deterioration.

The applicant may justifiably require that this part of the working plan be kept confidential, and should discuss this with the Agency licensing officer.

References:

1. Statutory guidance:

WMP4 (4.45)

2. Other guidance:

WP/7.200: RECORDING SPECIAL WASTE DEPOSITS

FACILITY TYPE: Disposal to land, where the permitted waste types include special wastes.

DESCRIPTION:

This section of the working plan should include the proposed method of measuring and recording deposits of special wastes, including the format of the records, for example. 3-dimensional grid plans.

References:

1. **Statutory Guidance:**

2. **Other Guidance:**