**Landfill Hazardous**

**Content Changes 2016-2018 Revision Guide**

***All page numbers refer to the 2016-2018 Revision Guides with red covers.***

*Section 1: Written Management System, page 15*

A written management system must be reviewed and updated:

* After an accident or complaint
* When applying to change (vary) a permit
* When changes are made to operations or equipment for permitted activities
* If an operator encounters a new environmental problem or issue

*Section 1: Financial Provision, page 16*

*NEW Learning Outcome 1.4: Know the timeframe and financial costs for the aftercare period according to guidance.*

*NEW Learning Outcome 1.5: Know what is required of a Technically Competent Manager for hazardous landfills.*

Waste operators need to outline in their written management system how that plan to demonstrate technical competence.

This should include reference to which approved industry scheme they will use. If landfill operators plan to comply with the CIWM/WAMITAB Operator Competence Scheme, they must remember that there is no 12 month grace period for new permit applications.

Furthermore, when a landfill operator achieves their primary competence qualification, they must take the Continuing Competence test every two years to maintain their knowledge.

*Section 2: Attenuation, Barriers and Construction, page 19*

Geophysical leak detection on can be used on all cells where the artificial sealing liner is a geomembrane, to check for defects after the

installation of the leachate drainage layer and prior to depositing waste.

*Section 3: Rejected Waste, page 23*

An operator may commit an offence if they do not reject hazardous waste that arrives on site:

* Without a consignment note.
* With a consignment note that is incomplete or incorrect.
* That the operation is not permitted to accept.

*Section 3: Liquid Waste and Standards, page 24*

*REMOVED Learning Outcome 3.3: Know how to determine that a waste is liquid.*

*NEW Learning Outcome 3.3: Know the requirements for disposal of asbestos (replaces 3.4 Know the standards required for accepting asbestos).*

There may be times when the collection of leachate or landfill gas from a cell containing asbestos may be necessary. Under these circumstances, steps must be taken to prevent the release of asbestos fibres e.g. using a binding agent such as cement.

*NEW Learning Outcome 3.7: Know what paperwork is required for accepting hazardous waste to landfill.*

*Section 4: Monitoring and Sampling, page 30*

Monitoring and sampling plans should include:

* A schedule for data collection and frequency of monitoring
* A layout showing the construction and location of monitoring points
* A description of the measurement techniques and sampling strategy
* The background and action/trigger values
* The methodology for data interpretation, review and reporting
* How results will be communicated

*Section 4: Perimeter Borehole, page 31*

A gas management plan must set out actions in the event of:

* Any abnormal changes observed in collected monitoring data
* All identified problems or failure of the gas control system
* A reported event e.g. a complaint regarding odour

*Section 4: Controlling and Utilising, page 32*

*NEW Learning Outcome 4.8: Know procedures for identifying and dealing with deep and shallow landfill fires.*

Early detection of hot spots and fires can be achieved through routine monitoring of carbon monoxide and gas temperature within the body of the waste and in the landfill gas collection infrastructure.

However, hydrogen and hydrogen sulphide can interfere with the instruments used to measure carbon monoxide, therefore the concentrations of these gases must also be measured.

*Section 5: Treatment and Pollution Risks, page 37*

To remove solids from leachate, operators can use techniques such as sedimentation and settlement, sand filtration and dissolved and flotation depending on conditions.

**Horizontal flow reedbeds** – frequently used to reduce biochemical oxygen demand and solids.

**Vertical flow reedbeds** – require less land then horizontal flow reedbeds and are more efficient at reducing ammonia.

Leachate storage can pose environmental risks in terms of odours, leakage from storage vessels into surface or groundwater and release of dissolved methane from solution.

*NEW Learning Outcome 5.6: Know what information should be in a hydrogeological risk assessment.*

During a hydrogeological risk assessment, an operator should review:

* Capping
* Lining design and leakage detection
* Leachate drainage systems and head control
* Groundwater and surface water management

*Section 6: Fires, page 42*

To deal with a hot spot, operators can switch off or turn down their systems for extracting gas from the landfill as an initial measure.

*Section 6: Noise, Dust, Odours and Other Nuisance, page 44*

**Dust**

The placement of fine materials in landfill can result in wind-blown dust unless primary covers or wetting are used as a control measure.

**Odour**

Operators should keep tipping areas as small as possible, cover wastes as soon as possible and design, construct and maintain intermediate capping to prevent the possible release of odours.

Regular odour impact assessments should cover odour generation and receptor exposure.

*Section 7: Stability, page 47*

An increasingly wide range of geomembrane materials are available for use as liners e.g. textured sheets for steeper slopes.

*Section 7: Vehicles, page 48*

If an operator is using banksmen, they must ensure:

* The banksmen are trained
* They are clearly visible to drivers at all times
* A clear and recognised system is adopted
* They stand in a safe position

*Section 7: Settlement and Compaction, page 50*

**Settlement:** the amount by which a landfill surface sinks below its original level due to compaction by its own weight and degradation of waste. This must be assessed to minimise the risk posed by environmental management infrastructure.

*Section 7: Survey Control Stations, page 51*

Assessments of stability should include:

* Effects of settlement on landfill cap
* Slippage within the foundation or liner system
* Rotational failure within the waste

*Section 7: Damage, page 52*

A liner system should be stable, robust, durable, resistant to chemical attack, difficult to puncture or rupture and have a low permeability.

The design may provide robustness, durability and puncture resistance by:

* Strength of liner components.
* Combination of components.
* Physical thickness.
* Protective layers.

When placing an artificial sealing liner, operators should ensure that it is not damaged by the placement machinery.

*Section 8: Monitoring, page 55*

Routine monitoring of groundwater and surface water is required to maintain continuity with the initial characterisation monitoring programme and to concentrate efforts on comparing the performance of landfill operations with conditions specified in the site permit or authorisation documents.

Indicator measurements form part of routine monitoring. It involves taking more frequent monitoring measurements specified for compliance purposes and to measure the impact of leachate levels. The site risk assessment should establish whether the site complies with the groundwater regulations and landfill regulations.

For engineered containment sites where a leachate leak is likely to be diffuse, at least one borehole should be provided per 100m width of the site on the down-gradient landfill site margin. They should be no closer than 10m to the edge of the landfill and no further than 100m from the waste margin.

Assessment criteria are designed to highlight the development of adverse trends in monitoring data to site management and the regulator.

*Section 9: Records, Submissions and Notifications, page 59*

Operators must keep records to demonstrate that they are operating and managing the activities in compliance with their management system.

* A management system can be used to explain what records are going to be kept and where they will be held.
* The management system also ensures records are kept up to date.
* The regulator expects operators to record changes made to their management systems and the dates they happen, including as a result of notifications to regulators or following permit variation.

**Records**

Operators must keep the following records to meet the requirements of their permit:

* Compliance checks.
* Investigation findings.
* Actions taken.
* Complaints.
* Audits.

*Section 10: Plans, page 62*

Operators need to review their site closure plan at least once every four years. It should also be reviewed if there are any proposed changes to the phasing of the landfill.

The plan should include:

* Plans for underground pipes/vessels.
* Method and resource for cleaning lagoons.
* Removal of harmful materials.
* Dismantling of buildings/structures.
* Soil testing to ascertain the degree of pollution.

A closure and aftercare plan sets out how an operator will close their site and manage it during the aftercare phase. It should include:

* How the landfill will be closed when it stops accepting waste
* When the operator will stop actively managing the landfill
* When the landfill will be ready for the operator to surrender their permit

Restoration involves installing the cap, drainage layer and soils to protect the cap.

*Section 10: Surrender, page 63*

A surrender assessment must include a description of the wastes that have been accepted and a review of technical measures. The description of waste should be based on waste acceptance and deposit records collected during the operational phases of the site.

For a hazardous landfill, operators should include a description of the waste types and hazards within each phase or cell.

Operators must ensure that any hazardous waste is isolated by a suitable thickness of soil or robust capping layer. The operator must ensure that the separation layer or cap is designed based on the potential harm the waste can cause.

The length of aftercare monitoring will depend on:

* Stabilisation of conditions
* Degradation of passive control measures
* Travel time between the waste mass and monitoring infrastructure

The aftercare period will last until the permit is successfully surrendered. The operator is responsible for maintaining, monitoring and controlling the site until the Regulator no longer thinks it poses a hazard to the environment.

*Section 11: Ignition Sources, page 68*

The following control measures should be taken to reduce the risk of fire on a landfill site:

* Minimising the probability of an ignition source being introduced.
* Minimising the number of workers within range of a possible fire or explosion.
* Maximising the distance between essential personnel and the installation operation.
* Providing suitable personal protective equipment or other protection for essential personnel.
* Using electrical equipment in areas with potentially explosive atmospheres which is periodically inspected against EN 60079-17 to confirm explosion protection is still effective.

*Revised List of Sources*

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| **About this sheet***The Continuing Competence Free Update Sheet is designed to be used by purchasers of the Continuing Competence Revision Guides for the 2016-2018 period.* *It will highlight any changes in technical guidance and sources used as a basis for the Continuing Competence question bank to support the revision of users.* |

**Frequently Asked Questions (FAQs)**

*How much does the test cost?*

Each test costs **£139** irrespective of the number of Activity Specific Tests chosen (a maximum of three activity specific tests can be taken at one time).

*What form of personal identification can I use at the test centre?*

* A valid signed passport of any country with your photograph and signature.
* A valid signed UK photo card driving licence (full or provisional).
* If you have none of these, you may present a Citizen’s ID Card.

*How can I find out if I have passed the test?*

At the end of the test you will receive your score report which provides the scores for each component of the Generic Knowledge Test and the score for each Activity Specific Test you have taken.

There is an example on the back of your score report showing how to work out if you’ve passed. Alternatively, you can go to <https://wamitab.org.uk/competence/continuing-competence/test-score-calculator/> and type in your scores.