

## Landfill Closed

Learning Outcome	Assessment Criteria	Source
1. Understand the legislative and regulatory requirements for a closed landfill	1.1 Describe the legislative requirements, regulations, codes of practice and guidance applicable to landfill management during aftercare for sites that closed:	<a href="https://www.gov.uk/guidance/landfill-operators-environmental-permits/close-your-landfill-site">https://www.gov.uk/guidance/landfill-operators-environmental-permits/close-your-landfill-site</a> <a href="https://www.gov.uk/guidance/landfill-operators-environmental-permits/close-your-landfill-site">Landfill and deposit for recovery: aftercare and permit surrender - GOV.UK (www.gov.uk)</a> <a href="https://www.gov.uk/guidance/landfill-operators-environmental-permits/close-your-landfill-site">Waste Framework Directive, article 13</a> <a href="https://www.legislation.gov.uk/ukxi/1994/1056/contents/made">https://www.legislation.gov.uk/ukxi/1994/1056/contents/made</a> <a href="https://www.gov.uk/guidance/landfill-operators-environmental-permits/develop-and-maintain-management-plans">https://www.gov.uk/guidance/landfill-operators-environmental-permits/develop-and-maintain-management-plans</a> <a href="https://www.legislation.gov.uk/ukxi/2016/1154/schedule/5/part/2/made">https://www.legislation.gov.uk/ukxi/2016/1154/schedule/5/part/2/made</a> <a href="https://www.legislation.gov.uk/eudr/1999/31">https://www.legislation.gov.uk/eudr/1999/31</a> <a href="https://www.gov.uk/government/publications/application-for-an-environmental-permit-part-e2-surrender-application">https://www.gov.uk/government/publications/application-for-an-environmental-permit-part-e2-surrender-application</a> <a href="https://www.gov.uk/government/publications/environmental-permits-and-abstraction-licences-tables-of-charges">https://www.gov.uk/government/publications/environmental-permits-and-abstraction-licences-tables-of-charges</a> <a href="https://www.gov.uk/guidance/get-advice-before-you-apply-for-an-environmental-permit">https://www.gov.uk/guidance/get-advice-before-you-apply-for-an-environmental-permit</a> <a href="https://www.gov.uk/government/publications/environmental-permits-and-abstraction-licences-tables-of-charges">https://www.gov.uk/government/publications/environmental-permits-and-abstraction-licences-tables-of-charges</a> <a href="https://www.gov.uk/government/publications/landfill-epr-502-and-other-permanent-deposits-of-waste-how-to-surrender-your-environmental-permit/landfill-and-deposit-for-recovery-aftercare-and-permit-surrender#Landfill_gas:continuous">https://www.gov.uk/government/publications/landfill-epr-502-and-other-permanent-deposits-of-waste-how-to-surrender-your-environmental-permit/landfill-and-deposit-for-recovery-aftercare-and-permit-surrender#Landfill_gas:continuous</a>
	- Prior to July 2001	
	- After July 2001	
	1.2 List the records that must be kept for a closed landfill and for how long	
1.3 List the information that may need to be submitted to the regulator		
1.4 Describe the permit surrender process and data requirements		



2. Understand the requirements for site engineering at a closed landfill	2.1 Describe the characteristics of any capping system	<a href="#">Landfill operators: environmental permits - How to do a stability risk assessment: landfill sites for hazardous and non-hazardous waste - Guidance - GOV.UK (www.gov.uk)</a>
	2.2 Explain how to maintain a capping system during the closure and aftercare period	<a href="#">Landfill operators: environmental permits - Construction quality assurance (CQA) - Guidance - GOV.UK (www.gov.uk)</a>
	2.3 List the elements of site construction that require regulatory approval	<a href="https://www.daera-ni.gov.uk/articles/regulation-landfills-northern-ireland">https://www.daera-ni.gov.uk/articles/regulation-landfills-northern-ireland</a> <a href="https://publishing.service.gov.uk/government/publications/354-09-lfe4-earthworks-on-landfill-sites">354_09 LFE4 - Earthworks on landfill sites (publishing.service.gov.uk)</a> <a href="#">Landfill and deposit for recovery: aftercare and permit surrender - GOV.UK (www.gov.uk)</a> <a href="#">Landfill operators: environmental permits - Design and build your landfill site - Guidance - GOV.UK (www.gov.uk)</a> <a href="https://www.hse.gov.uk/fireandexplosion/dsear.htm">https://www.hse.gov.uk/fireandexplosion/dsear.htm</a> <a href="https://www.gov.uk/government/publications/using-geosynthetic-clay-liners-in-landfill-engineering-lfe3">https://www.gov.uk/government/publications/using-geosynthetic-clay-liners-in-landfill-engineering-lfe3</a> <a href="https://www.gov.uk/government/publications/using-geomembranes-in-landfill-engineering-lfe5">https://www.gov.uk/government/publications/using-geomembranes-in-landfill-engineering-lfe5</a> <a href="https://www.gov.uk/government/publications/using-non-woven-protector-geotextiles-in-landfill-engineering-lfe7">https://www.gov.uk/government/publications/using-non-woven-protector-geotextiles-in-landfill-engineering-lfe7</a> <a href="https://www.gov.uk/guidance/landfill-operators-environmental-permits/design-and-build-your-landfill-site#landfill-capping">https://www.gov.uk/guidance/landfill-operators-environmental-permits/design-and-build-your-landfill-site#landfill-capping</a> <a href="https://www.gov.uk/government/publications/landfill-epr-502-and-other-permanent-deposits-of-waste-how-to-surrender-your-environmental-permit/landfill-and-deposit-for-recovery-aftercare-and-permit-surrender#Completion_criteria:_settlement">https://www.gov.uk/government/publications/landfill-epr-502-and-other-permanent-deposits-of-waste-how-to-surrender-your-environmental-permit/landfill-and-deposit-for-recovery-aftercare-and-permit-surrender#Completion_criteria:_settlement</a> <a href="https://www.gov.uk/guidance/landfill-operators-environmental-permits/how-the-environment-agency-makes-decisions-on-landfill-engineering">https://www.gov.uk/guidance/landfill-operators-environmental-permits/how-the-environment-agency-makes-decisions-on-landfill-engineering</a>



3. Understand how to manage a closed landfill	3.1 Describe the implications of standing water on a capping system	No test questions on this AC
	3.2 List the information that should be included in an up to date: - Closure plan - Aftercare plan - Closure report	<a href="#">Landfill and deposit for recovery: aftercare and permit surrender - GOV.UK (www.gov.uk)</a> <a href="#">Landfill operators: environmental permits - Close your landfill site - Guidance - GOV.UK (www.gov.uk)</a> <a href="#">Landfill operators: environmental permits - Landfills for inert waste - Guidance - GOV.UK (www.gov.uk)</a>
	3.3 Explain how to maintain a: - Closure plan - Aftercare plan - Closure report	<a href="#">Landfill operators: environmental permits - Review your hydrogeological risk assessment - Guidance - GOV.UK (www.gov.uk)</a> <a href="#">Monitoring landfill gas surface emissions: LFTGN 07 - GOV.UK (www.gov.uk)</a>
	3.4 Explain why groundwater and surface water monitoring is needed on a closed landfill site	<a href="#">Landfill operators: environmental permits - Restore your landfill site - Guidance - GOV.UK (www.gov.uk)</a>
	3.5 Differentiate between monitoring for: - Compliance - Operational performance - Infrastructure failure - Surrender of the environmental permit	<a href="#">Landfill operators: environmental permits - Monitor and report your performance - Guidance - GOV.UK (www.gov.uk)</a> <a href="https://www.daera-ni.gov.uk/articles/regulation-landfills-northern-ireland">https://www.daera-ni.gov.uk/articles/regulation-landfills-northern-ireland</a> <a href="https://assets.publishing.service.gov.uk/media/5a7e090b40f0b62305b80615/LFTGN03.pdf">https://assets.publishing.service.gov.uk/media/5a7e090b40f0b62305b80615/LFTGN03.pdf</a> <a href="https://www.gov.uk/guidance/landfill-operators-environmental-permits/calculate-your-financial-provision">https://www.gov.uk/guidance/landfill-operators-environmental-permits/calculate-your-financial-provision</a>
	3.6 Describe the implications of 'settlement' and 'compaction' within a landfill and the impact on aftercare	<a href="https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/321609/LFTGN04.pdf">https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/321609/LFTGN04.pdf</a> <a href="https://www.gov.uk/government/publications/protect-groundwater-and-prevent-groundwater-pollution/protect-groundwater-and-prevent-groundwater-pollution#hazardous-substances">https://www.gov.uk/government/publications/protect-groundwater-and-prevent-groundwater-pollution/protect-groundwater-and-prevent-groundwater-pollution#hazardous-substances</a>
	3.7 List the data that should be recorded for each gas monitoring point	<a href="https://www.gov.uk/government/publications/monitoring-landfill-gas-surface-emissions-lftgn-07">https://www.gov.uk/government/publications/monitoring-landfill-gas-surface-emissions-lftgn-07</a>
	3.8 Describe the information required in a: - Conceptual site model - Hydrogeological risk assessment - Subsequent reviews	<a href="https://www.gov.uk/guidance/landfill-operators-environmental-permits/design-and-build-your-landfill-site#design-requirements">https://www.gov.uk/guidance/landfill-operators-environmental-permits/design-and-build-your-landfill-site#design-requirements</a> <a href="https://www.gov.uk/guidance/landfill-operators-environmental-permits/monitor-and-report-your-performance#carry-out-topographic-surveys">https://www.gov.uk/guidance/landfill-operators-environmental-permits/monitor-and-report-your-performance#carry-out-topographic-surveys</a>



		<p><a href="https://www.gov.uk/guidance/landfill-operators-environmental-permits/develop-and-maintain-management-plans#surface-water-groundwater">https://www.gov.uk/guidance/landfill-operators-environmental-permits/develop-and-maintain-management-plans#surface-water-groundwater</a></p> <p><a href="https://www.gov.uk/guidance/landfill-operators-environmental-permits/monitor-and-report-your-performance#monitor-landfill-leachate">https://www.gov.uk/guidance/landfill-operators-environmental-permits/monitor-and-report-your-performance#monitor-landfill-leachate</a></p> <p><a href="https://www.gov.uk/guidance/landfill-operators-environmental-permits/monitor-and-report-your-performance#monitor-groundwater">https://www.gov.uk/guidance/landfill-operators-environmental-permits/monitor-and-report-your-performance#monitor-groundwater</a></p> <p><a href="https://www.gov.uk/guidance/landfill-operators-environmental-permits/monitor-and-report-your-performance#monitor-surface-water">https://www.gov.uk/guidance/landfill-operators-environmental-permits/monitor-and-report-your-performance#monitor-surface-water</a></p> <p><a href="https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/321602/LFTGN02.pdf">https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/321602/LFTGN02.pdf</a></p>
<p>4. Understand the procedures for managing emissions from a closed landfill</p>	<p>4.1 Describe the requirements for on-going surface water management</p> <p>4.2 Explain why it is important to monitor and treat any leachate formed within the site</p> <p>4.3 Explain how leachate generated on site should be managed to prevent pollution</p> <p>4.4 Explain why landfill gas must be collected, utilised, and treated</p> <p>4.5 List the elements that should be covered in a landfill gas management plan during aftercare</p> <p>4.6 List what should be included in a landfill gas monitoring and sampling plan</p> <p>4.7 Describe the actions to take if a perimeter borehole contains landfill gas components at a range of levels (including above a compliance limit)</p>	<p><a href="https://www.legislation.gov.uk/nisr/2003/496/contents/made/Landfill%20operators%3A%20environmental%20permits%20-%20Manage%20leachate%20-%20Guidance%20-%20GOV.UK%20(www.gov.uk)">https://www.legislation.gov.uk/nisr/2003/496/contents/made/Landfill operators: environmental permits - Manage leachate - Guidance - GOV.UK (www.gov.uk)</a></p> <p><a href="https://www.legislation.gov.uk/nisr/2003/496/contents/made/Landfill%20operators%3A%20environmental%20permits%20-%20Manage%20landfill%20gas%20-%20Guidance%20-%20GOV.UK%20(www.gov.uk)">Landfill operators: environmental permits - Manage landfill gas - Guidance - GOV.UK (www.gov.uk)</a></p> <p><a href="https://www.legislation.gov.uk/nisr/2003/496/contents/made/Landfill%20operators%3A%20environmental%20permits%20-%20Develop%20and%20maintain%20management%20plans%20-%20Guidance%20-%20GOV.UK%20(www.gov.uk)">Landfill operators: environmental permits - Develop and maintain management plans - Guidance - GOV.UK (www.gov.uk)</a></p> <p><a href="https://www.legislation.gov.uk/nisr/2003/496/contents/made/Landfill%20and%20deposit%20for%20recovery%3A%20aftercare%20and%20permit%20surrender%20-%20GOV.UK%20(www.gov.uk)">Landfill and deposit for recovery: aftercare and permit surrender - GOV.UK (www.gov.uk)</a></p> <p><a href="https://www.legislation.gov.uk/nisr/2003/496/contents/made/Landfill%20operators%3A%20environmental%20permits%20-%20Close%20your%20landfill%20site%20-%20Guidance%20-%20GOV.UK%20(www.gov.uk)">Landfill operators: environmental permits - Close your landfill site - Guidance - GOV.UK (www.gov.uk)</a></p> <p><a href="https://www.legislation.gov.uk/nisr/2003/496/contents/made/Landfill%20operators%3A%20environmental%20permits%20-%20Monitor%20and%20report%20your%20performance%20-%20Guidance%20-%20GOV.UK%20(www.gov.uk)">Landfill operators: environmental permits - Monitor and report your performance - Guidance - GOV.UK (www.gov.uk)</a></p> <p><a href="https://www.daera-ni.gov.uk/articles/regulation-landfills-northern-ireland">Review and Investigation of deep-seated fires within landfill sites</a></p> <p><a href="https://www.daera-ni.gov.uk/articles/regulation-landfills-northern-ireland">https://www.daera-ni.gov.uk/articles/regulation-landfills-northern-ireland</a></p> <p><a href="https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/321602/LFTGN02.pdf">https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/321602/LFTGN02.pdf</a></p> <p><a href="https://assets.publishing.service.gov.uk/media/5a7e090b40f0b62305b80615/LFTGN03.pdf">https://assets.publishing.service.gov.uk/media/5a7e090b40f0b62305b80615/LFTGN03.pdf</a></p>



	<p>4.8 Describe the procedures for detecting and dealing with deep and shallow landfill fires</p>	<p><a href="https://assets.publishing.service.gov.uk/media/5a7dae5de5274a5eae_a65b1c/LFTGN04.pdf">https://assets.publishing.service.gov.uk/media/5a7dae5de5274a5eae_a65b1c/LFTGN04.pdf</a>  <a href="https://www.gov.uk/guidance/best-available-techniques-environmental-permits">https://www.gov.uk/guidance/best-available-techniques-environmental-permits</a>  <a href="https://www.gov.uk/guidance/discharges-to-surface-water-and-groundwater-environmental-permits">https://www.gov.uk/guidance/discharges-to-surface-water-and-groundwater-environmental-permits</a>  <a href="https://www.gov.uk/government/publications/landfill-methane-oxidation-techniques">https://www.gov.uk/government/publications/landfill-methane-oxidation-techniques</a>  <a href="https://www.gov.uk/guidance/landfill-operators-environmental-permits/manage-landfill-gas#oxidation">https://www.gov.uk/guidance/landfill-operators-environmental-permits/manage-landfill-gas#oxidation</a></p>
<p>5. Understand the main causes of accidents in relation to closed landfill activities and how to prevent them</p>	<p>5.1 Identify the causes of accidents in relation to closed landfill activities</p> <p>5.2 Identify the methods used to prevent accidents in relation to closed landfill activities</p>	<p><a href="http://esauk.org">LFG ICoP (esauk.org)</a>  <a href="https://www.hse.gov.uk/waste/landfillfires.htm">https://www.hse.gov.uk/waste/landfillfires.htm</a>  <a href="https://www.gov.uk/guidance/landfill-operators-environmental-permits/develop-and-maintain-management-plans">Landfill operators: environmental permits - Develop and maintain management plans - Guidance - GOV.UK (www.gov.uk)</a>  <a href="https://www.gov.uk/guidance/landfill-operators-environmental-permits/accept-the-right-waste">https://www.gov.uk/guidance/landfill-operators-environmental-permits/accept-the-right-waste</a>  <a href="https://www.gov.uk/guidance/landfill-operators-environmental-permits/landfills-for-inert-waste#accident-management-plan#">https://www.gov.uk/guidance/landfill-operators-environmental-permits/landfills-for-inert-waste#accident-management-plan#</a></p>

