

Waste Services Contract

**Waste Acceptance Criteria –  
Metallic Waste Treatment**

WSC-WAC-MET – Draft Version 2.0 – January 2010



# Waste Acceptance Criteria – Metallic Waste Treatment

## Document Control

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## **Executive Summary**

This document forms part of the Waste Services Contract between LLW Repository Ltd and its Customers. It provides the Waste Acceptance Criteria for metallic waste being consigned to LLW Repository Ltd for treatment, by blasting or melting, and recycling prior to disposal at the Low Level Waste Repository including details of the physical, chemical, radiological, packaging and transportation requirements that waste must comply with to be accepted.

Along with the criteria for other waste services that make up the Waste Acceptance Criteria, this document details **what** waste can be consigned to LLW Repository Ltd for treatment and / or disposal. It should be read in conjunction with the Waste Acceptance Procedure, including the associated Processes, Guides and Forms, that detail **how** to consign waste to LLW Repository Ltd for treatment and /or disposal. A Process Overview Diagram (Reference: WSC-PRO-OVR) that provides a visual guide to the waste acceptance processes, and all other documents associated with LLW Repository Ltd's Waste Services, are available from our website: [www.llwrsite.com](http://www.llwrsite.com)

If you need any assistance or have any questions regarding this Waste Acceptance Criteria or LLW Repository Ltd's Waste Services, please contact the LLW Repository Ltd Customer Team by telephone: (01946) 722000 or by e-mail: [customerteam@llwrsite.com](mailto:customerteam@llwrsite.com)

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## 1 Introduction

This document defines the *Waste Acceptance Criteria* for the treatment of metallic waste by *LLW Repository Ltd*. This treatment service is available to reduce the volume of low level waste, by blasting or melting, prior to disposal at the *Low Level Waste Repository*.

### 1.1 Scope

This Waste Acceptance Criteria (WAC) document represents the generic requirements for the Packaging, Receipt, Treatment, Grouting and Disposal of metallic low level radioactive waste. The criteria apply to each consignment of waste to LLW Repository Ltd.

To provide an indication to Customers of the potential Metallic Waste Treatment Service options that are available through LLW Repository Ltd, this Waste Acceptance Criteria document presents a composite overview of the key criteria from each *Service Supplier*. This does not necessarily represent the full range of acceptance criteria for each *Service Supplier*. To allow full acceptance of metallic waste by LLW Repository Ltd, it will be necessary to ensure that waste also complies with the *Waste Acceptance Criteria* of the relevant *Service Supplier*. These requirements will ultimately be defined in the Service Information within the Waste Services Quotation (Reference: WSC-TEM-WSQ) supplied by LLW Repository Ltd to the Customer in response to a Waste Enquiry Form (Reference: WSC-FOR-WEN). LLW Repository Ltd will work with the *Service Suppliers* to assess wastes against their *Waste Acceptance Criteria* during the Waste Enquiry and Waste Consignment Processes.

### 1.2 Service Supplier

The Metallic Waste Treatment Service is provided by the following sub-contractors to LLW Repository Ltd:

- Cumbria Nuclear Solutions Ltd, using the following treatment facilities:
  - Siempelkamp (Germany)
  - Bear Creek (USA)
- Studsvik UK, using the following treatment facilities:
  - Lillyhall (UK)
  - Nyköping (Sweden)

These facilities provide a range of size reduction, surface decontamination, blasting, melting, decay storage and conditioning options to support the treatment and recycling of metallic waste.

### 1.3 Process

Customers deliver metallic waste consignments to the selected *Service Supplier's* facility or to the Low Level Waste Repository, for onward transport. Following treatment at the relevant facility, exempt metal is recycled and the residual waste is re-packaged and transported to the Low Level Waste Repository for grouting and disposal by LLW Repository Ltd as *Secondary Waste*. In some cases, the *Secondary Waste* may be disposed of by the *Service Supplier*.

### 1.4 Waste Acceptance

For a *Waste Consignment* to be accepted by LLW Repository Ltd, it must satisfy the criteria detailed in this document and the Waste Acceptance Criteria Overview document

(Reference: WSC-WAC-OVR). Waste will only be accepted from Customers in accordance with LLW Repository Ltd's Waste Acceptance Procedure. In addition, waste is accepted for treatment and disposal by LLW Repository Ltd based on the availability of sufficient volumetric and radiological capacity.

### **1.5 Variations**

Variations to or waiver of the criteria defined in this document may be allowed but only on approval of a Waste Consignment Variation Form (Reference: WSC-FOR-WCV) by LLW Repository Ltd. In all cases, approval is required prior to waste being prepared for consignment.

### **1.6 Approval in Advance**

Certain criteria defined in this document state that it is necessary to obtain an Approval in Advance from LLW Repository Ltd. This can be achieved by approval of a Waste Consignment Variation Form (Reference: WSC-FOR-WCV) by LLW Repository Ltd.

### **1.7 Non-Compliant Waste**

Any non-compliant wastes consigned to LLW Repository Ltd may require collection by the Customer in accordance with the relevant conditions in the Waste Services Contract.

### **1.8 Defined Terms**

Defined terms within this document are highlighted in *italics* and their meanings are presented in the Glossary.

## 2 Waste Acceptance Criteria

This section details the Waste Acceptance Criteria for LLW Repository Ltd’s Metallic Waste Treatment Service. It is presented in three sections:

- M1 – Physical and Chemical Properties
- M2 – Radiological Properties
- M3 – Packaging and Transportation Requirements

### M1 Physical and Chemical Properties

#### M1.1 Waste Treatment and Segregation

Waste should not be consigned for *Metallic Waste* treatment if reasonably practicable measures could be adopted to segregate its constituent parts such that alternative waste treatment and / or disposal services could be used to reduce the final volume requiring disposal at the Low Level Waste Repository or to avoid disposal at the Low Level Waste Repository.

#### M1.2 Acceptable Metallic Waste

Only solid radioactively contaminated or activated metallic waste will be accepted for treatment by LLW Repository Ltd under the Metallic Waste Treatment Service.

Where waste arising from the Metallic Waste Treatment Service is to be disposed of as *Secondary Waste* at the Low Level Waste Repository, it must be compliant with the Low Level Waste Repository’s Certificate of Authorisation issued under the Radioactive Substances Act 1993 by the Environment Agency (Reference: BZ2508). LLW Repository Ltd will determine if the *Secondary Waste* will meet the Waste Acceptance Criteria requirements during the Waste Enquiry Process.

In addition, the following *Service Supplier* specific criteria apply:

Studsvik UK	Cumbria Nuclear Solutions Ltd	
Lillyhall / Nyköping	Siempelkamp	Bear Creek
The following materials are generally accepted for treatment: <ul style="list-style-type: none"> <li>• Radioactively contaminated or activated low level metals, such as: steel, cast iron, aluminium, copper, lead, brass. Cables with copper or aluminium conductors.</li> </ul>	The following materials are generally accepted for treatment: <ul style="list-style-type: none"> <li>• Radioactively contaminated or activated materials, such as: steel, non-ferrous materials like aluminium, brass, copper and lead, as well as other materials that can be utilised for casting. Compounds and blends of materials can be accepted.</li> <li>• Galvanised materials must be separated and marked as such.</li> </ul>	The following materials are generally accepted for treatment: <ul style="list-style-type: none"> <li>• Bulk metals, such as: pipe, pumps, tools, file cabinets, etc.</li> <li>• Carbon steel and stainless steel are the preferred alloys for recycling</li> <li>• Lead-encased metal shapes (LEMS) are accepted for removal of the encasing material</li> </ul>

**M1.3 Restricted Metallic Waste**

The following *Service Supplier* specific criteria apply:

Studsvik UK	Cumbria Nuclear Solutions Ltd	
Lillyhall / Nyköping	Siempelkamp	Bear Creek
Waste must not contain: <ul style="list-style-type: none"> <li>• Zinc-galvanized metals or any other metals not listed as acceptable for treatment</li> </ul>	Waste must not contain: <ul style="list-style-type: none"> <li>• Wire rope in pieces longer than 500 mm</li> </ul>	Waste must not contain: <ul style="list-style-type: none"> <li>• Non-ferrous metals such as brass, bronze, cadmium, copper, chromium and monel</li> <li>• Molybdenum</li> <li>• Uranium metals</li> <li>• Tantalum</li> <li>• Tungsten</li> <li>• Zirconium</li> <li>• Aluminium</li> <li>• Stellite</li> <li>• Tin</li> <li>• Metals coated with asbestos</li> <li>• Alloys with melting points above 1,649 °C</li> <li>• Galvanized metal with Zinc weight percentage &gt;1% of the galvanized metal weight</li> <li>• Lead in forms other than bricks, sheet and shapes that have been deformed are evaluated in a case by case basis</li> </ul>

**M1.4 Non-Metallic Waste**

The following *Service Supplier* specific criteria apply:

Studsvik UK	Cumbria Nuclear Solutions Ltd	
Lillyhall / Nyköping	Siempelkamp	Bear Creek
Waste must not contain: <ul style="list-style-type: none"> <li>• Non-metallic materials such as rubber, plastic, or other organic materials</li> <li>• Cans of paint, grease, aerosols, or other organic materials</li> </ul>	Waste must not contain: <ul style="list-style-type: none"> <li>• Bituminous or other pipe linings</li> <li>• Organic materials such as wood, synthetic, foil, rubber, etc, exceeding 1% by weight</li> </ul>	Waste must not contain: <ul style="list-style-type: none"> <li>• Crushed metal items that contain entrained non-metallic materials</li> <li>• Bulk metal containing &gt;2% incinerable materials by weight (such as: wire insulation, paint or other</li> </ul>

Studsvik UK Lillyhall / Nyköping	Cumbria Nuclear Solutions Ltd	
	Siempelkamp	Bear Creek
<ul style="list-style-type: none"> <li>• Toxic materials</li> <li>• Materials that may cause explosion or self-ignition</li> <li>• Cables containing tensioning wires</li> </ul> <p>Items with thick coating (such as: paint, bitumen , etc) require approval in advance</p>	<ul style="list-style-type: none"> <li>• Explosive materials</li> <li>• Adhesive impurities such as grease rust, varnish, etc, exceeding 1% by volume of the batch</li> <li>• Closed hollow body items, such as: valves</li> <li>• Wire ropes with compression at the end</li> </ul> <p>Boron containing materials must be separated and marked as such. Materials containing boron require approval in advance</p>	<p>coatings)</p> <ul style="list-style-type: none"> <li>• Articles contaminated with Beryllium or Polychlorinated Biphenyls (PCB)</li> </ul>

**M1.5 Non-Waste Materials**

Where materials must be added to the waste, the Customer shall use reasonable means to limit the quantity of non-waste materials present in a *Waste Consignment*. It is not acceptable to purposely dilute waste or add shielding materials for the sole purpose of achieving compliance with the requirements of this Waste Acceptance Criteria.

**M1.6 Explosive Materials**

Waste shall not contain explosive materials.

**M1.7 Liquids**

Waste shall not contain any *Free Liquid* or liquids with flashpoint less than 21 °C absorbed on solid materials.

In addition, the following *Service Supplier* specific criteria apply:

Studsvik UK Lillyhall / Nyköping	Cumbria Nuclear Solutions Ltd	
	Siempelkamp	Bear Creek
<p>Waste must not contain:</p> <ul style="list-style-type: none"> <li>• Liquids of any kind</li> </ul>	<p>Waste must not contain:</p> <ul style="list-style-type: none"> <li>• Water</li> <li>• Oil</li> </ul>	<p>Waste must not contain:</p> <ul style="list-style-type: none"> <li>• Oil</li> <li>• Solvent contamination</li> </ul>

**M1.8 Strong Oxidising Agents**

Waste shall not contain strong oxidising agents.

**M1.9 Pressurised Gas Receptacles and Aerosols**

Waste shall not contain pressurised gas receptacles and aerosols, as defined within The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2007 (or as amended).

**M1.10 Toxic Materials**

Waste shall not contain materials which generate or are capable of generating toxic gases, vapours or fumes harmful to persons handling the waste.

**M1.11 Biological, Infectious and Pathogenic Materials**

Waste shall not contain biological, pathogenic or infectious materials, as listed within Hazard Groups 2, 3 or 4 produced by The Advisory Committee on Dangerous Pathogens, unless treated so that no viable micro-organism(s) from Hazard Groups 2, 3 or 4 exist by a method approved in advance by LLW Repository Ltd.

**M1.12 Hazardous Waste**

The Hazardous Waste (England and Wales) Regulations 2005 (or as amended) apply to a limited amount of radioactive waste as most radioactive waste is subject to the provisions of the Radioactive Substances Act 1993 and is therefore outside the scope of the Hazardous Waste Regulations. However, to fulfil regulatory expectations in relation to disposals at the Low Level Waste Repository, waste containing hazardous waste may be accepted for treatment and disposal but only on approval of a Waste Consignment Variation Form (Reference: WSC-FOR-WCV) by LLW Repository Ltd. The Form must include details of the components that make the waste hazardous and the levels at which they are present.

Materials that are likely to, or actually, possesses one or more *Hazard Properties* shall be assessed and where present be excluded from the waste or made safe prior to any conditioning or mixing with other materials. For the material to be made safe the hazards or risks shall be removed or reduced, by a method approved in advance by LLW Repository Ltd, to such a level that a *Waste Consignment* no longer possesses that hazard or risk.

**M1.12.1 Asbestos**

Waste shall not contain asbestos.

**M1.13 Hazardous Substances and Non-Hazardous Pollutants**

The Groundwater (England and Wales) Regulations 2009 (or as amended) apply to disposals at the Low Level Waste Repository. The disposals of *Hazardous Substances* and *Non-Hazardous Pollutants* must therefore be controlled. Waste containing *Hazardous Substances* and *Non-Hazardous Pollutants* may be accepted for treatment and disposal but only on approval of a Waste Consignment Variation Form (Reference: WSC-FOR-WCV) and *Suitable Supporting Justification* by LLW Repository Ltd.

## M2 Radiological Properties

### M2.1 Radioactivity Limits

Where waste arising from the Metallic Waste Treatment Service is to be disposed of as *Secondary Waste* at the Low Level Waste Repository, the activity of any *Waste Consignment* consigned for disposal as low level waste at the Low Level Waste Repository shall not exceed the following values:

- 4GBq/t for all alpha-emitting radionuclides
- 12GBq/t for all other radionuclides

In accounting for *Activity* against these limits, the activity of *Decay Products* with half-lives of less than three months shall not be accounted for if they are present in amounts not exceeding those which could be present through the natural decay of radionuclides that are accounted for.

LLW Repository Ltd will confirm that *Secondary Waste* to be disposed of at the Low Level Waste Repository will meet the radioactivity limits during the Waste Enquiry Process.

In addition, the following *Service Supplier* specific criteria apply:

Studsvik UK Lillyhall / Nyköping	Cumbria Nuclear Solutions Ltd	
	Siempelkamp	Bear Creek
The radionuclide concentration per item must not exceed the following limits: <ul style="list-style-type: none"> <li>• &lt; 500 Bq/g, predominantly Beta Gamma emitting radionuclides and / or low toxicity Alpha emitting radionuclides</li> </ul>	The radionuclide concentration per item must not exceed the following limits: <ul style="list-style-type: none"> <li>• &lt; 1000 Bq/g for all activity</li> <li>• &lt;10 000 Bq/g for total of H-3, C-14, Fe-55 and Ni-63</li> </ul>	The radionuclide concentration per package must not exceed the following limits: <ul style="list-style-type: none"> <li>• ≤ 11 kBq/cc for all radionuclides with a half-life greater than 5 years except for H-3 and C-14</li> <li>• ≤ 1 kBq/cc for H-3 and C-14</li> <li>• ≤200 kBq/cc for other mixed fission and activation product with Proton Number, Z &lt; 84</li> <li>• ≤40 kBq/m3 for Th-232</li> <li>• ≤ 120 kBq/m3 for Depleted Uranium or Natural Uranium as metal or oxide</li> <li>• ≤ 90 Bq/g and ≤1% of activity for <i>Transuranic Wastes</i> and Ra-226</li> </ul>

### M2.2 Fissile Radionuclides

Where waste arising from the Metallic Waste Treatment Service is to be disposed of as *Secondary Waste* at the Low Level Waste Repository, any waste containing *Fissile*

*Radionuclides* may be consigned for disposal if the *Waste Consignment* complies with the Radioactivity Limits defined in M2.1.

In addition, within the *Secondary Waste Consignment*, the combined quantity of U-233, U-235 and all Pu radionuclides must not exceed 75g.

This restriction does not apply to any natural or depleted uranium in the *Secondary Waste Consignment*.

LLW Repository Ltd will confirm that *Secondary Waste* to be disposed of at the Low Level Waste Repository will meet the *Fissile Radionuclide* limits during the Waste Enquiry Process.

In addition, the following *Service Supplier* specific criteria apply:

Studsvik UK	Cumbria Nuclear Solutions Ltd	
Lillyhall / Nyköping	Siempelkamp	Bear Creek
None Specified	The following limits for <i>Fissile Radionuclides</i> apply: <ul style="list-style-type: none"> <li>• The combined quantity of U-233, U-235, Pu-239 and Pu-241 must not exceed 15g</li> <li>• The total concentration of U-233, U-235, Pu-239 and Pu-241 must not exceed 15g per 100 kg</li> </ul>	None Specified

**M2.3 Radiation**

The maximum radiation level at any point on the external surface of the *Transport Container* shall not exceed 2mSv/h.

In addition, the following *Service Supplier* specific criteria apply:

Studsvik UK	Cumbria Nuclear Solutions Ltd	
Lillyhall / Nyköping	Siempelkamp	Bear Creek
The following dose rate limits apply: <ul style="list-style-type: none"> <li>• The average surface dose rate for any item must not exceed 0.2mSv/h</li> <li>• No hot spot must exceed 5mSv/h</li> <li>• The dose rate at 1m must not exceed 0.1mSv/h</li> </ul>	None Specified	The following dose rate limits apply: <ul style="list-style-type: none"> <li>• The average surface dose rate for any item must not exceed 0.2mSv/h</li> </ul>

**M2.4 Contamination**

External non-fixed contamination levels on the *Transport Container* at the time of consignment shall be as low as reasonably practicable and in any case not more than 0.4Bq/cm<sup>2</sup> for all alpha-emitting radionuclides and 4Bq/cm<sup>2</sup> for all other radionuclides averaged over an area of 300cm<sup>2</sup>.

In addition, the following *Service Supplier* specific criteria apply:

Studsvik UK	Cumbria Nuclear Solutions Ltd	
Lillyhall / Nyköping	Siempelkamp	Bear Creek
None Specified	None Specified	The maximum external non-fixed contamination on any item must be: <ul style="list-style-type: none"> <li>• ≤ 1 Bq/cm<sup>2</sup> for all alpha-emitting radionuclides</li> <li>• ≤ 8 Bq/cm<sup>2</sup> for all other radionuclides</li> </ul>

**M2.5 Sealed Sources**

Waste shall not contain closed sources, including sealed sources, laminated sources and/or homogeneous sources, as defined in The Radioactive Substances (Waste Closed Sources) Exemption Order 1963, or as amended.

### M3 Packaging and Transportation Requirements

#### M3.1 Approved Waste Packages and Transport Containers

Waste for treatment may be consigned to LLW Repository Ltd in a wide range of *Waste Packages* and *Transport Containers*.

The range of *Waste Packages* includes loose items, bagged items, wrapped items and drummed items.

The range of *Transport Containers* includes 1/3 Height, 1/2 Height, 2/3 Height, 3/4 Height and Full Height ISO Containers.

The waste packaging and transport container options will be determined by the Customer and LLW Repository Ltd through the Waste Enquiry Process. The chosen option will be specified in a Waste Packing Plan (Reference: WSC-TEM-WPP).

#### M3.2 Non-Containerised Waste

Non-containerised waste may be accepted for treatment by LLW Repository Ltd but only on approval of a Waste Packing Plan (Reference: WSC-TEM-WPP).

#### M3.3 Maximum Weight

The following *Service Supplier* specific criteria apply:

Studsvik UK	Cumbria Nuclear Solutions Ltd	
	Lillyhall / Nyköping	Siempelkamp
The maximum weight of a waste item must not exceed: <ul style="list-style-type: none"> <li>Lillyhall: 5t (can be exceeded but requires approval in advance)</li> <li>Nyköping: 500t</li> </ul>	None Specified	The maximum weight of a waste item must not exceed: <ul style="list-style-type: none"> <li>18.1t (can be exceeded but requires approval in advance)</li> </ul>

#### M3.4 Packing Efficiency

Customers are responsible for loading the *Transport Container* so that, as far as reasonably practicable, waste is packaged in such a way as to maximise the use of the *Transport Container* in accordance with the relevant Waste Packing Plan (Reference: WSC-TEM-WPP) for the *Waste Consignment*.

#### M3.5 Photographic Records

Customers are responsible for ensuring that, as far as reasonably practicable, photographic records of the step by step filling of the *Transport Container* with waste are produced and retained by the Customer.

#### M3.6 Transport Regulations

Waste must be consigned for treatment in accordance with one of the following IAEA Transport Regulations classifications:

- Excepted Package

- Low Specific Activity material (LSA I, LSA II or LSA III)
- Surface Contaminated Object (SCO I or SCO II)

**M3.7 Part Loads**

A *Waste Consignment* may not be consigned to LLW Repository Ltd if sent as a part-load with other materials that are not Low Level Waste on the same vehicle.

**M3.8 Site Rules and Instructions**

When delivering waste to LLW Repository Ltd for treatment, the Customer's representatives must observe the site rules and instructions at either the *Service Supplier's* site or the Low Level Waste Repository.

**M3.9 Transport Container Return**

Where the *Transport Container* belongs to the Customer, LLW Repository Ltd, or its subcontractor, will unload the contents of the *Transport Container* and ensure that it is available for return, within the timescale agreed with the Customer, in as good a condition as it was when delivered.

### 3 Glossary

**Activity**, expressed in Becquerels, means the number of spontaneous nuclear transformations occurring in a period of one second.

**Consign**, in the context of waste, means to transfer waste to LLW Repository Ltd for the purpose of disposal at the Low Level Waste Repository and **Consigned** has a corresponding meaning.

**Decay Products** means those radionuclides succeeding another radionuclide in the radioactive decay chain in which both, or all, occur.

**Disposal Authorisation** means the current Certificate of Authorisation for the Low Level Waste Repository (Reference: BZ2508) issued under the Radioactive Substances Act 1993 by the Environment Agency.

**Fissile Radionuclides** means any of the following radionuclides:

Th-228	Np-237	Pa-231	Cm-243	Cf-249
U-232	Pu-238	Pa-232	Cm-244	Cf-250
U-233	Pu-239	Am-241	Cm-245	Cf-251
U-234	Pu-240	Am-242m	Cm-246	Cf-252
U-235	Pu-241	Am-243	Cm-247	Es-254
U-236	Pu-242			

**Free Liquid** means any liquid which is present as a separate phase including liquid which is physically absorbed onto a solid matrix rather than chemically combined.

**Hazard Properties** means the following properties of waste which render them hazardous in accordance with the Hazardous Waste (England and Wales) Regulations 2005:

- H1 “Explosive”: substances and preparations which may explode under the effect of flame or which are more sensitive to shocks or friction than dinitrobenzene.
- H2 “Oxidising”: substances and preparations, which exhibit highly exothermic reactions when in contact with other substances, particularly flammable substances.
- H3-A “Highly Flammable”:
  - liquid substances and preparations having a flash point below 21oC (including extremely flammable liquids), or
  - substances and preparations which may become hot and finally catch fire in contact with air at ambient temperature without any application of energy, or
  - solid substances and preparations which may readily catch fire after brief contact with a source of ignition and which continue to burn or to be consumed after removal of the ignition source, or
  - gaseous substance and preparations which are flammable in air at normal temperature and pressure, or
  - substances and preparations, which in contact with water or damp air evolve highly flammable gases in dangerous quantities.
- H3-B “Flammable”: liquid substances and preparations having a flash point equal to or greater than 21oC and less than or equal to 55oC.

- H4 “Irritant”: non-corrosive substances and preparations, which, through immediate, prolonged or repeated contact with the skin or mucous membrane, can cause inflammation.
- H5 “Harmful”: substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may involve limited health risks.
- H6 “Toxic”: substances and preparations (including very toxic substances and preparations) which, if they are inhaled or ingested or if they penetrate the skin, may involve serious, acute or chronic health risks and even death.
- H7 “Carcinogenic”: substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce cancer or increase its incidence.
- H8 “Corrosive”: substances and preparations, which may destroy living tissue on contact.
- H9 “Infectious”: substances containing viable microorganisms or their toxins, which are known or reliably believed to cause disease in man or other living organisms.
- H10 “Teratogenic”: substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce non-hereditary congenital malformations or increase their incidence.
- H11 “Mutagenic”: substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce hereditary genetic defects or increase their incidence.
- H12 Substances and 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, e.g. a leachate, which possesses any characteristics listed above.
- H14 “Ecotoxic”: substances and preparations, which present or may present immediate or delayed risks for one or more sectors of the environment.

**Hazardous Substance(s)** means any substance or group of substances that are toxic, persistent and liable to bioaccumulate. This includes the following when they are toxic, persistent and liable to bio-accumulate:

- organohalogen compounds and substances which may form such compounds in the aquatic environment
- organophosphorous compounds
- organotin compounds
- substances and preparations, or the breakdown products of such, which have been proved to possess carcinogenic or mutagenic properties or properties which may affect steroidogenic, thyroid, reproduction or other endocrine-related functions in or via the aquatic environment
- persistent hydrocarbons and persistent and bioaccumulable organic toxic substances
- cyanides
- metals (in particular cadmium and mercury) and their compounds
- arsenic and its compounds
- biocides and plant protection products

**LLW Repository Ltd** means the waste management company that holds the Site Licence to manage and operate the Low Level Waste Repository under contract to the owner of the site, the Nuclear Decommissioning Authority.

**Low Level Waste** means solid low level radioactive waste in accordance with the requirements specified in this Waste Acceptance Criteria document. It typically includes metals, soil, building rubble and organic materials, which arise principally as lightly contaminated miscellaneous scrap. Metals are mostly in the form of redundant equipment. Organic materials are mainly in the form of paper towels, clothing and laboratory equipment that have been used in areas where radioactive materials are used, such as hospitals, research establishments and the nuclear industry. Low Level Waste contains radioactive materials other than those acceptable for disposal with municipal and general commercial or industrial waste.

**Low Level Waste Repository** means the national low level radioactive waste disposal facility situated near the village of Drigg in West Cumbria.

**Metallic Waste** means those wastes for which best practicable means are sufficient to render them into a form suitable for treatment and which if subject to relevant techniques such as decontamination, blasting or melting could reasonably be expected to be reduced in volume by 50% or more. *Metallic Waste* can typically consist of: scaffolding, pipes, tubing, valves, structural elements, cabinets, plant items, heat exchangers, turbines, etc.

**Non-Hazardous Pollutant** means any substance liable to cause pollution other than a *Hazardous Substance*.

**Packing Efficiency** means the extent to which the internal volume in a *Transport Container* is fully utilised.

**Secondary Waste** means waste for disposal at the Low Level Waste Repository that arises from a treatment process completed by LLW Repository Ltd for a Customer under the Waste Services Contract.

**Service Supplier** means the sub-contractor that LLW Repository Ltd uses to deliver the Metallic Waste Treatment Service as defined in Section 1.2.

**Suitable Supporting Justification** means additional information that may be required to support an application to consign waste to LLW Repository Ltd or to seek a variation to the Waste Acceptance Criteria. The form of justification required will be dependent upon the nature of the issue to be considered. In some cases, the justification will be in the form of a Best Practicable Means (BPM) Assessment, a Best Practicable Environmental Option (BPEO) Assessment or a Best Available Technique (BAT) Assessment. Advice on the level of justification required should be sought from LLW Repository Ltd.

**Transport Container** means those containers, as defined in M3.1, that are approved for use to consign a *Waste Consignment* to LLW Repository Ltd for treatment.

**Transuranic Wastes** means waste which has been contaminated with alpha emitting transuranic radionuclides. Transuranic radionuclides are those radionuclides that have atomic numbers greater than uranium, i.e. greater than 92, including neptunium, plutonium, americium, curium, etc.

**Waste Acceptance Criteria** means the requirements set out in this document and the Waste Acceptance Criteria Overview (Reference: WSC-WAC-OVR) and relevant Statutory Regulations applicable to the customer in respect of the transport, treatment and disposal of low level waste.

**Waste Consignment** means one *Transport Container* and its contents of waste and packaging with a maximum external volume of 40m<sup>3</sup>, received from a single Customer on one road or rail vehicle as specified in the Waste Consignment Information Form (Reference: WSC-FOR-WCI).

**Waste Item** means an individual item of *Metallic Waste*.

**Waste Package** means those packages, such as drums and bags, as defined in M3.1, that are approved for use to consign *Metallic Waste* to LLW Repository Ltd for treatment.

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