

Logistic Services



LLWR Logistics Capability

The Low Level Waste Repository Site is the UK's national low level radioactive waste disposal facility. It is located close to the West Cumbrian coastline in the North West of England. It is one of 19 sites owned by the Nuclear Decommissioning Authority (NDA). The site is operated by LLW Repository Ltd (LLWR) on behalf of the NDA.

The safe disposal of waste is a vital part of any industrial or decommissioning process. Our role is to ensure that low level radioactive waste generated in the UK is disposed of in a way that protects people and the environment.

Established in 1959, the site has safely disposed of the nation's low level waste for over 50 years. The containerised waste is grouted prior to disposal in engineered concrete vaults. More than £100 million has been invested in the infrastructure of the site over the past decade to maintain the facility as a vital asset for the UK.

National LLW Strategy

The National LLW Strategy was approved in August 2010 by the UK Government and devolved administrations. The strategy was developed by the NDA in conjunction with LLWR. The aim of the strategy is to provide a high level framework within which LLW management decisions can be taken to ensure safe, secure, environmentally acceptable, and cost-effective solutions.

The strategy advocates the application of the Waste Hierarchy, with a preference for managing LLW at higher levels within the hierarchy, where practicable (i.e. waste prevention, reuse, recycling).

National Waste Programme

The LLW National Waste Programme (NWP) has been developed to support the ongoing delivery of the UK Strategy for the Management of Solid Low Level Radioactive Waste (LLW) from the Nuclear Industry. The aim of the NWP is to support the implementation of the UK Strategy for the Management of Solid Low Level Radioactive Waste and the Nuclear Decommissioning Authority's

(NDA) National Programme Delivery in a timely and cost-effective manner.

In order to deliver this mission, the following key outcomes are required by the NDA:

- Requirement for a replacement LLW Repository eliminated
- Mature programme management arrangements in place
- Nuclear Provision reduced and LLW funding reallocated to core activities
- Public recognition for delivery of safe, high quality LLW management
- Tailored disposal routes for all waste types established
- Flexible, best value capabilities embedded across LLW management cycle
- Visible on-site waste reduction progressing the decommissioning mission
- Reliable waste forecasts
- Current 'lower activity' radioactive waste categorisation challenged
- Reduced environmental impacts including carbon footprint
- Pricing and incentivisation model that drives the right behaviours



Packaging, waste delivery systems and supporting services is a key enabler in delivering successful and efficient end-to-end waste treatment services

We offer non standard alternative packages solutions from both LLWR fleet and LLWR's supply chain

CONTENTS

Waste routes and logistics	04
Single use packages	06
Re-use packages	10
Alternative options	18
Transport	20
Waste route	22

Our packaging fleet includes Type B Fissile packages

Through the National Waste Programme the LLWR Site receives solid low level radioactive waste from a range of customers, such as the nuclear industry, the Ministry of Defence, non-nuclear industries, and education, medical and research establishments. This waste is transported by road or rail to the LLWR Site or various waste treatment facilities, located within the UK and internationally, in a range of specialist IP-1 or IP-2, Type B Fissile package designs.

Logistics Services Operational Capability

LLWR manages the manufacture and operation of the fleet of IP-1/IP-2 containers, designed specifically for the transport of lower activity wastes, both fissile and non-fissile. LLWR undertakes a programme of inspection and maintenance of this fleet, to ensure the containers are fully compliant and functional.

Our packaging services team are authorised to license IAEA package designs meeting the Excepted, IP-1, IP-2, IP-3 and Type A criteria for transporting the following:

- Compactable waste to super compaction facilities across the UK
- Metallic waste VLLW & LLW for treatment across the UK, Europe and the USA
- Untreatable (non-fissile and fissile) LLW for disposal
- VLLW to landfill site for waste diversion
- Combustible solid and liquid VLLW/LLW to incinerators across Europe

LLWR Logistics Services Team offers a range of consultation services and provides optimum solutions for the transport of radioactive waste. LLWR offers capability in package design, manufacture, IAEA testing, approval and ongoing operational support. LLWR provides services to Customers in all or any of the lifecycle stages of packaging and ancillary equipment (as depicted on Pg 5).

For all packaging and associated equipment discussed in this brochure, full technical details and valid Package Approval Certificate where applicable are available for download from the LLWR Website <http://llwrsite.com/waste-services/our-services/packaging/>

- Certificate of Approval
- Operating Instruction
- Data Sheet

Our packaging fleet consists of multiple packaging designs including Industrial Package Type 2 (IP-2) rated versions suitable for road, rail and sea transport



Our Packaging team offer optimised solutions for waste packaging management

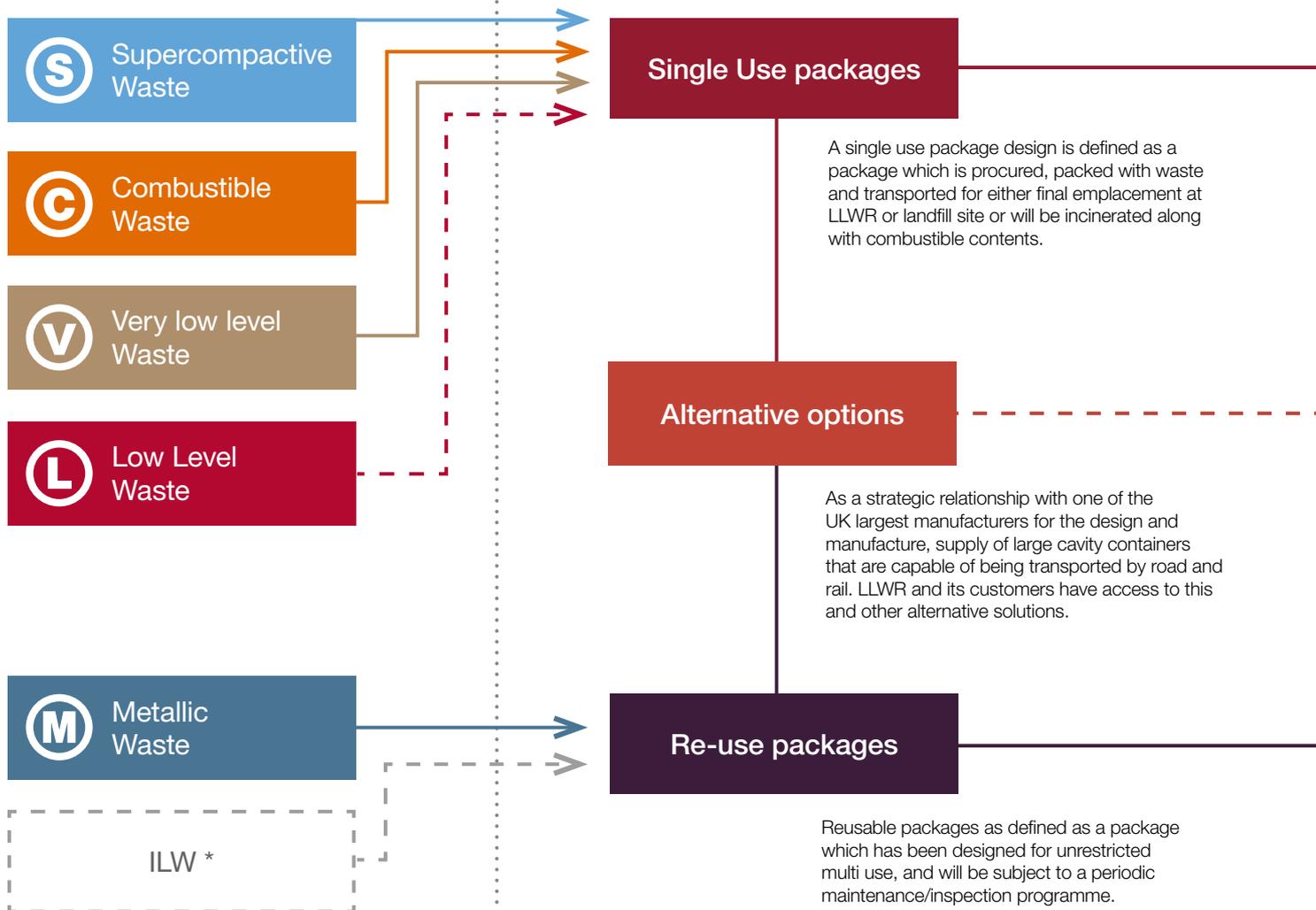
Waste routes and logistics

Radioactive waste

Waste treatment and disposal.

Package solution

LLWR offers a fleet of reusable packages and a fleet of single use packages for waste management routes. The reusable and single use packages and are aligned to the wastes as indicated below.



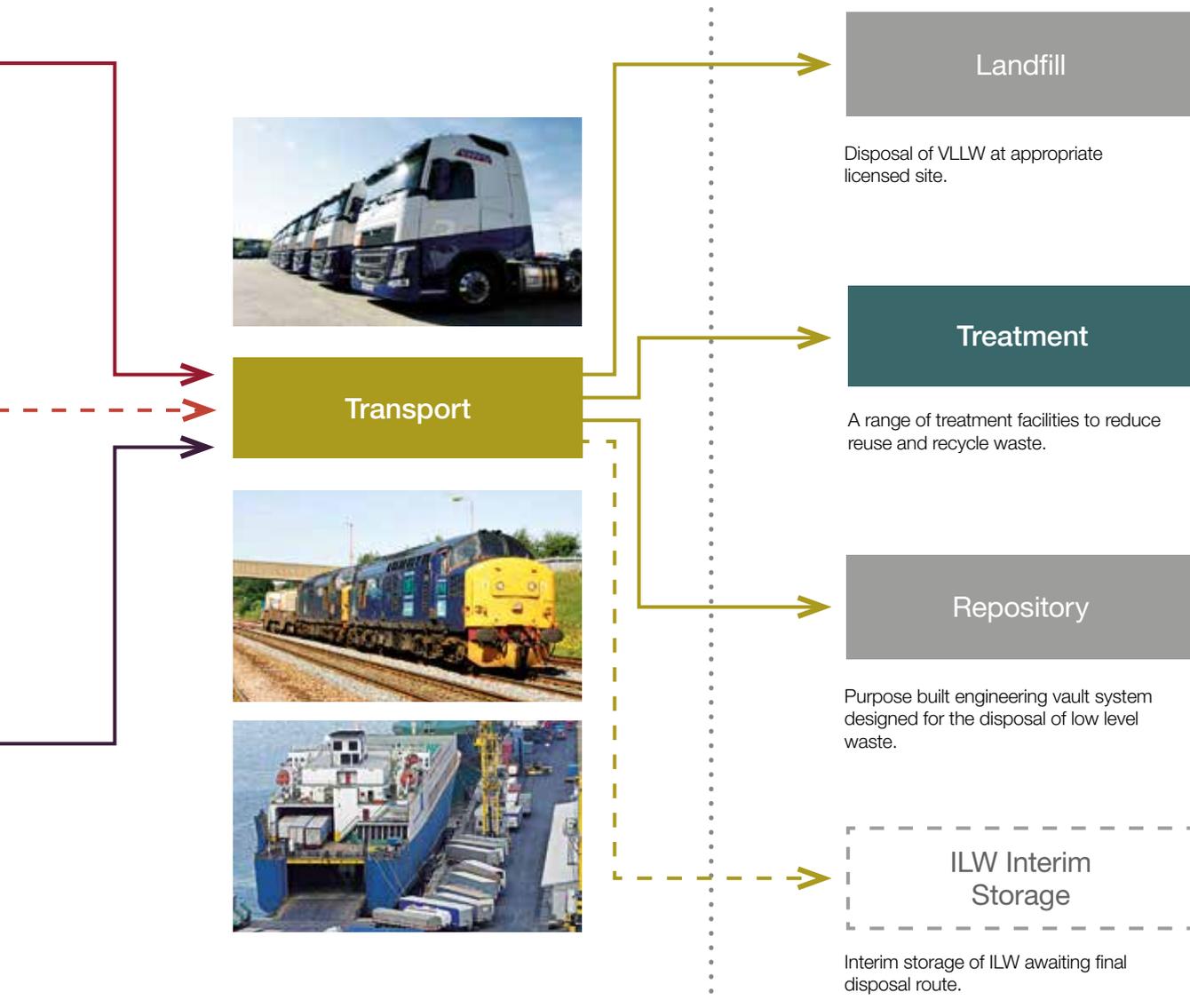
* LLWR does not offer any ILW services other than Transport Solutions for customer owned ILW

Transport solution

Subject to destination LLWR offers single or multi-model transport solutions, using road, rail and sea.

Waste route

LLW Repository Ltd (LLWR) provides a range of waste management services to help customers manage their lower activity wastes at every stage of the waste hierarchy.



Single use packages

Single use package fleet consist of a range of packaging from IP-1 soft sided packagings, IP-1/IP-2 ISO containers and IP-2 drums.



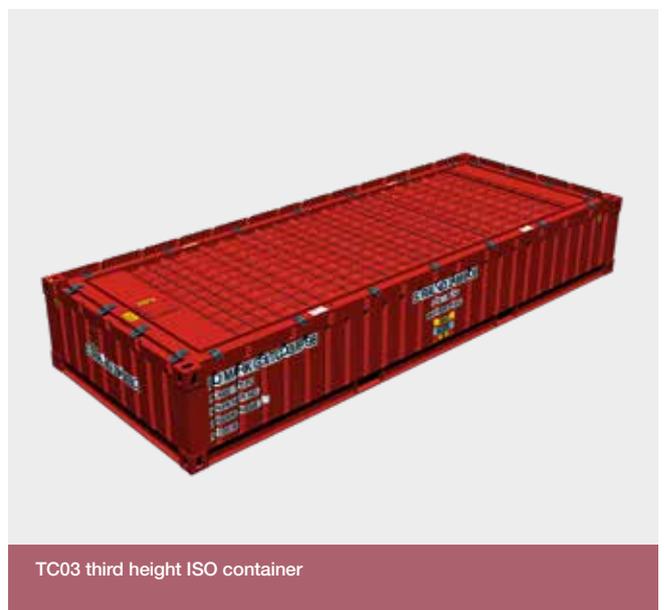
TC19 drum



SSP being removed from loading frame



TC01 at the LLWR grouting facility, each container is filled with grout to create a solid structure, suitable for disposal in our vaults



TC03 third height ISO container

IP-1 Soft Sided packages

LLWR has a strategic relationship with PACTEC. PACTEC is the industry leader in the design and manufacturing of packaging for the waste and transportation industry across the globe. PACTEC Inc corporate offices are based in Clinton, LA with sales and distribution locations worldwide, including the UK. PACTEC own and operate manufacturing facilities in Subic Bay, Philippines and Clinton, LA.

LLWR SSP supply services offer a short lead time service from confirmation of order to SSP delivery

Capability

The LLWR SSP design is compatible with the TC11 transport system comprising of an outer shell of 7.5oz woven polypropylene (WPP) with a 8 mil polythene (PE) lining bonded to the inner most lining of 12oz non-woven polypropylene (NWPP) and can carry LSA-1 or SCO-1 material in solid form. LLWR offer supply of the entire range of PACTEC SSP designs, from pallet size SSP of approximately 0.5te capability to SSP of approximately 10te capability.

Key Benefits

- Dual tested to UN test criteria for Flexible Intermediate Bulk Containers (FIBCs) and IAEA criteria for IP-1 package types
- Short lead time for supply
- Low cost packaging
- Multiple options



SSP being loaded in loading frame



SSP being removed from loading frame



TC11 loaded with LLWR soft sided packages



SSPs in landfill

The LLWR SSP design is compatible with the TC11 transport system

IP-1/IP-2 ISOs

LLWR has a strategic relationship with WHDavis Ltd who are a UK designer and manufacturer of large cavity transport containers. WHDavis Ltd have designed and manufactured containers since the early 1970s and hold CSC type approvals for manufacture of TC01 and TC03 package designs.

Capability

The TC01 and TC03 package designs are based on the ISO freight container concept and is specifically designed for the transport and disposal of low level radioactive waste material in the form of LSA and SCO material as defined in the IAEA Regulations.

The TC01 is designed for the transport and disposal of solid radioactive material in the form of VLLW and LLW conforming to LSA or SCO material. Each container is supplied as an Industrial Package Type 2 (IP-2) container. The TC01 package design consists of a 6.058m x 2.438m x 1.325m dry ISO freight container of all welded steel construction and is fitted with either of two designs of bolted top lid, both of which are designed to be self-draining in order to prevent the collection and retention of water.

The TC03 is designed for the transport and disposal of high density, solid radioactive material in the form of VLLW and LLW conforming to Low Specific Activity (LSA) or Surface Contaminated Objects (SCO) material. Each container is supplied as an Industrial Package Type 2 (IP-2) container. The TC03 package design consists of a 6.058m x 2.438m x 0.88m dry ISO freight container of all welded steel construction and is fitted with either of two designs of bolted top lid, both of which are designed to be self-draining in order to prevent the collection and retention of water*.

**TC03 package designs fitted with Mark III lids require an overlid for transport.*

Key Benefits

- Tested to ISO1496 criteria and the additional IAEA criteria for IP-2 packages
- Compatible with LLWR waste acceptance criteria
- Large cavities and high gross weight capability
- Offer a supply of package spares and ancillaries
- LLWR holds design authority appointment and manages the IPR designs on behalf of NDA and are able to modify hardware or controls as per customer demands



TC01 package design



TC03 package design

The TC01 and TC03 package designs are for emplacement in the LLWR vaults

IP-2 Drums

LLWR has a strategic relationship with AW Stokes & Son (Drums) Ltd who are a UK based manufacturer of carbon steel drums. AW Stokes & Son (Drums) Ltd utilises the latest drum making equipment, including an external plant utilising water based technology offering high standards and reduction on environmental impacts. LLWR drum supply services offer a short lead time service from confirmation of order to drum delivery.

Capability

TC14 is a UN approved (Type 1A2) nominal 210 litre open top steel drum, fitted with a flat lid with no openings typically for solid contents or with two openings (2 x steel Tri-sure closures, consisting of 1 x 2" screwed plug and 1 x 3/4" screwed bung) typically for liquid contents. The TC14 package design is approved to transport liquid and solids.

TC19 is a UN approved (Type 1A2) nominal 210 litre open top steel drum, fitted with a flat lid with no openings. The width over the closure ring lugs is 600mm. TC19 has a reduced neck diameter such that the diameter of the closure ring is less than the diameter of the drum body, which is suitable for WAMAC Supercompaction Facility. The TC19 package design is approved to transport solids only.

The general nature of the contents for TC14 and TC19 that will be packed into the drums will be low level waste (LLW) or very low level waste (VLLW) classified as LSA-I or LSA-II in solid or liquid form, and/or SCO-I or SCO-II in solid form, that will be sent for treatment or disposal to landfill.

Key Benefits

- Dual tested to UN test criteria 1A1 and 1A2 drums and IAEA criteria for IP-2 packages
- Short lead time for supply (drum or components)
- Value for money
- TC19 is compatible with WAMAC Supercompaction Facility at Sellafield
- TC14 is dual tested for liquids and solids
- LLWR holds design authority appointment and manages the IPR designs on behalf of NDA and are able to modify hardware or controls as per customer demands



TC14 for Solids



TC14 for Liquids



TC19 for Super-compactable Waste

TC14 is dual tested to transport both liquids and solids

Re-use packages

Reusable package fleet consist of a range of packagings from specially designed IP-2 ISO to Type B Fissile package designs. All reusable package designs operate under a periodic maintenance and inspection regime, under LLWR control.



The introduction of the TC02 fleet will facilitate multiple round trip collections of waste from multiple sites to treatment facilities on a recurring basis



TC11 loaded with VLLW showing vertical restraint system fitted



The type B(U) fissile 'NOVAPAK Package Design' is capable of transporting 4x 210L drums containing ILW in many forms



The TC01R package system provides a low cost multi use transport solution for LLW

IP-2 Packages – TC01R

The LLWR TC01R packaging system provides a low cost multi-use transport solution for waste that is capable of being treated, thus eventually reducing the volume of LLW at the Repository.

Capability

The TC01R is specially designed as an unrestricted reusable variant of the LLWR package design TC01 half height ISO container, it has no restrictions on re-use cycles or mileage.

The TC01R package design consists of a 6.058m x 2.438m x 1.325m dry ISO freight container of all-welded steel construction (ISO container manufactured and tested to BS ISO 1496-1) and is fitted with a bolted top lid which is designed to be self-draining in order to prevent the collection and retention of water. The totally seal welded construction of the body and lid, two lid seals and double o-rings fitted on both; the vent port HEPA filter assembly and grout port blanking flange, form the containment system of this package design.

Key Benefits

- Fully reusable and maintainable package design
- Tested to ISO1496 criteria and the additional IAEA criteria for IP-2 packages
- Compatible with LLWR waste acceptance criteria when converted to TC01 disposal variant for final disposal
- Large cavities and high gross weight capability
- Offer a supply of package spares and ancillaries
- LLWR holds design authority appointment and manages the IPR designs on behalf of NDA and are able to modify hardware or controls as per customer demands



TC01R lid being lifted off using an overhead crane and four-chain sling



TC01R End Wall showing HEPA filter assembly, which differentiates the TC01 and TC01R hardware



TC01Rs being stacked at the manufacturers prior to being loaded on the trailer for despatch to the customers

TC01R is a low cost unrestricted reusable IP-2 HHISO container

Type B Fissile – NOVAPAK

LLWR provides strategic Type B packaging capability through a fleet of NOVAPAKs, managed by LLWR on behalf of the NDA. LLWR has contracts in place with the NOVAPAK Design Authority and with the NOVAPAK manufacturer, enabling the fleet to be expanded in line with customer requirements.

Capability

The NOVAPAK is reusable, and designed for the transport of drummed Alpha ILW. Each NOVAPAK consists of an Inner and an Outer – the Inner provides leak-testable containment boundary for up to four 200 litre drums (either plain, or overpacked) and the Outer provides the main impact protection, thermal shield, and tie-down and handling features. The nominal dimensions of the NOVAPAK Outer are 2,220mm (length) x 2,220mm (width) x 1,818mm (height). However, they are designed to be transported on a NOVAPAK Transport Frame, which has a standard ISO footprint, standard ISO twistlocks, and can transport two NOVAPAKs at a time. The maximum authorised gross weight of each NOVAPAK is 5,000kg – this enables it to be loaded with four drums of up to 150kg, or two drums of up to 275kg. When the NOVAPAK packaging is used to transport two drums, the drums must be loaded in diagonally opposite corners of the Inner.

Key Benefits

The benefits of the LLWR Type B Packaging Service are:

- All maintenance and licensing requirements of the NOVAPAK fleet are met by LLWR
- LLWR is a clear, single point of contact for all NOVAPAK-related queries
- LLWR provides a spares management system that ensures the timely provision of quality-checked spares
- LLWR is a knowledge hub, sharing information from the Design Authority and operational experience from users of the NOVAPAK fleet
- LLWR supply framework contracts mean ongoing support from the NOVAPAK Design Authority and manufacturers (e.g. for hardware modifications)
- Tried and tested asset optimisation – where appropriate, LLWR can engage with other customers and receiver sites to develop integrated schedules and ensure the NOVAPAK fleet is used to its full capacity
- Packaging familiarisation opportunities, an e-learning module, and a readiness review procedure to ensure everything is in place before operations begin



A 'NOVAPAK Outer' with door open revealing loaded 'NOVAPAK Inner' containing 4x drums of ILW



2x NOVAPAKs restrained onto the dedicated NOVAPAK Transport Frames



2x NOVAPAKs arriving at a customer's site



2x NOVAPAKs being monitored at rail sidings

The Novapak package is designed for the transport of ILW

IP-2 Packages – TC02

The LLWR TC02 IP-2 packaging system provides a flexible and safe solution for transporting solid low level waste to UK and International waste treatment facilities.

Capability

The TC02 is essentially a half height ISO freight container (ISO Container manufactured and tested to ISO 1496-1), it measures 6.058m x 2.438m x 1.325m high and consists of a welded carbon steel external frame and a stainless steel inner tub. The totally seam welded construction of the stainless steel inner tub is fitted with a twin seal mounted HEPA filter along with stainless steel lid (with twin seals) form the containment system.

The TC02 is designed to be used on a 'start clean, stay clean' philosophy and this is reflected through the monitoring protocols which are adopted. Unlike a disposal container it can be thoroughly monitored both internally and externally. The guidance note PAA/GN05 details the monitoring requirements for the package.

The TC02 is primarily designed to be used with ANY fit for purpose waste boxes/drums fit on the footprint of the stillages. The TC02 has been designed to transport primary-packaged metallic (and combustible waste) from customer sites to UK and International waste treatment facilities.

TC02 Metallic Transport System

- Primary design intent is to collect and transport waste boxes
- Secondary design intent is to transport single large heavy items
- Engineered system for payload restraint using type S2 or S3 stillages
- Containment boundary moved inboard of structure to provide additional protection during handling and transport
- Stainless steel containment boundary to aid decontamination
- Captive quick change swing bolts for lid closure
- HEPA filtered vent – no restriction on transport duration
- Engineered to facilitate safe unloading at treatment facilities
- Designed to be handled by single operative
- LLWR holds design authority appointment and manages the IPR designs on behalf of NDA and are able to modify hardware or controls as per customer demands



The TC02 is primarily designed to be used with ANY fit for purpose waste boxes/drums that fit on the footprint of the stillages.

TC02 Stillages

TC02 Stillages are designed to restrain contents for transport in either the TC02 packaging designs or direct on to the flatbed trailers. Contents are restrained within the TC02 transport system using three stillage variants that can accommodate a range of payloads from waste boxes, drums and single large heavy items.

Capability

The type S2 stillage is a full length stillage which is used to carry individual items of contaminated plant equipment and can be adapted to accommodate bespoke payload specific restraint systems. The stillage has a tare weight of 2,500kg and a maximum payload capacity of 27,500kg. Only one S2 stillage can be accommodated within a TC02 package. LLWR provides a full support service to customers wishing to use the full size stillage.

The type S3 stillage is a half length stillage but with a tare weight of 1,200kg and an increased payload capacity of 14,000kg. The S3 stillage has two configuration options: a drum payload configuration, where the stillage can be used to transport up to 11 standard 210 litre drums; and an optimum capacity configuration where the stillage is used to transport secondary inner boxes or items of contaminated plant or equipment. The TC02 package can accommodate up to two type S3 stillages.

The type L2 lifting frame is compatible with both the S2 and S3 stillage. The type L2 stillage is offered as a sale item to customers and treatment facilities. Providing both an efficient system for loading and unloading stillage from the TC02 and allowing each facility to own and register the L2 lifting frame on their own lifting equipment register, which attaches local controls compliance elements.

Key Benefits

- LLWR holds design authority appointment and manages the IPR designs on behalf of NDA and are able to modify hardware or controls as per customer demands



S2 full size stillage showing adjustable end bars



S3 half size stillage fitted with restraint bars for transportation of drums



Stillage Lifting Frame (L2) which is compatible with both S2 and S3 stillages, and capable of a 27.5te lift

The S2 is a full length stillage used to carry large heavy individual objects

Waste boxes

LLWR has designed a range of waste boxes compatible with TC02 stillage variants. These purpose engineered waste boxes provide customers with optimised primary packaging, facilitating the safe handling, loading and unloading in the transportation of waste to treatment facilities.

The LLWR waste box design incorporates:

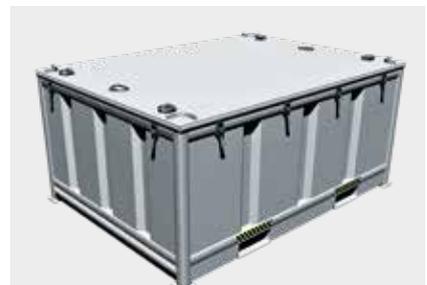
- | | |
|---|--|
| <ul style="list-style-type: none"> • 3x size variants with escalating payload capability | <ul style="list-style-type: none"> • Compatible with TC02 stillage package designs |
| <ul style="list-style-type: none"> • Captive fork pockets for lifting | <ul style="list-style-type: none"> • Capable of being mechanically loaded |
| <ul style="list-style-type: none"> • Weatherproof containment design with no contamination traps | <ul style="list-style-type: none"> • Versatile application for handling and short term storage of heavy/dense wastes |
| <ul style="list-style-type: none"> • Industry-wide accepted safe closure system | <ul style="list-style-type: none"> • LLWR holds design authority appointment and manages the IPR designs on behalf of NDA and are able to modify hardware or controls as per customer demands |
| <ul style="list-style-type: none"> • Minimum five year maintenance cycle | |
| <ul style="list-style-type: none"> • Stackable design | |



3.2t Payload capacity



6.6t Payload capacity



13.4t Payload capacity

Waste boxes designed to be compatible with the TC02 S2 Stillage



ISO Equipment

Seal protector system for use with the TC01, TC03 and TC01R package designs provide protection to the upper and inner edges during loading of waste materials.

Capability

The LLWR seal protector system ensures the container body top assembly (which locates the containment seals) is protected from damage and falling debris during the packing of waste into the container cavity.

The Protectors can be supplied in mild steel and non-magnetic stainless steel and have welded lettering or numerical identities at each end of the unit for simple installation in minutes.

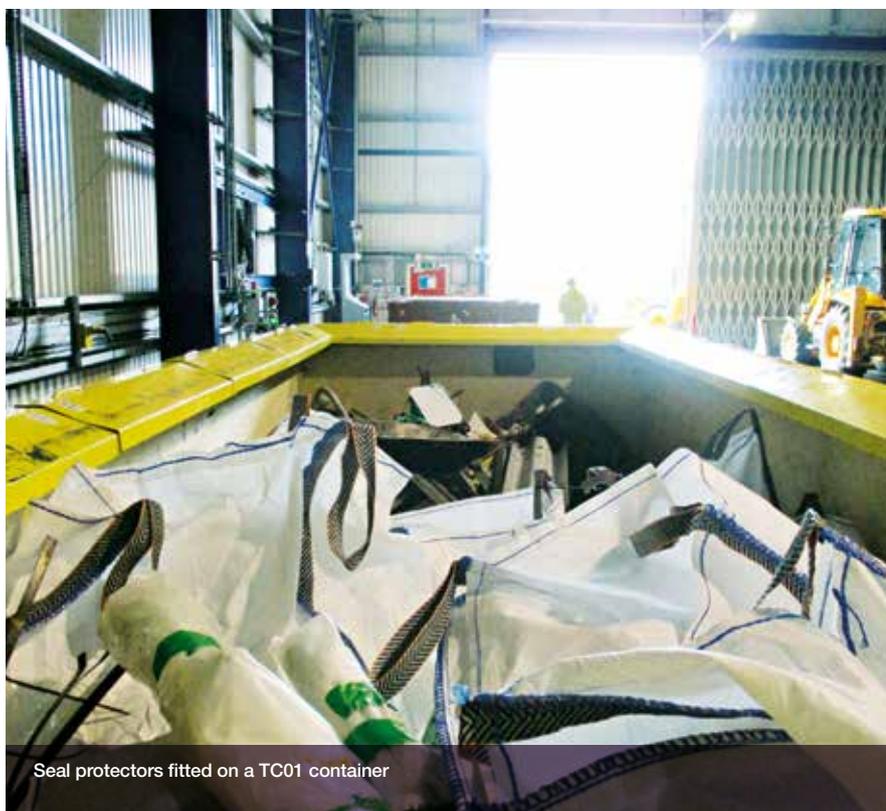
Each set of Protectors comes with a portable metal storage box, fitted with fork lift truck pockets for easy handling.

Key Benefits

- Protects seal tray during loading
- Prevents collection of debris in seal tray
- Ergonomic design
- Simple, safe assembly
- Compatible with mechanical loading of waste
- Compatible with magnetic unloading systems (stainless variant)



ISO equipment designed for the safe operation of containers



Seal protectors fitted on a TC01 container



Single use packages

Re-use packages

Alternative options

Transport

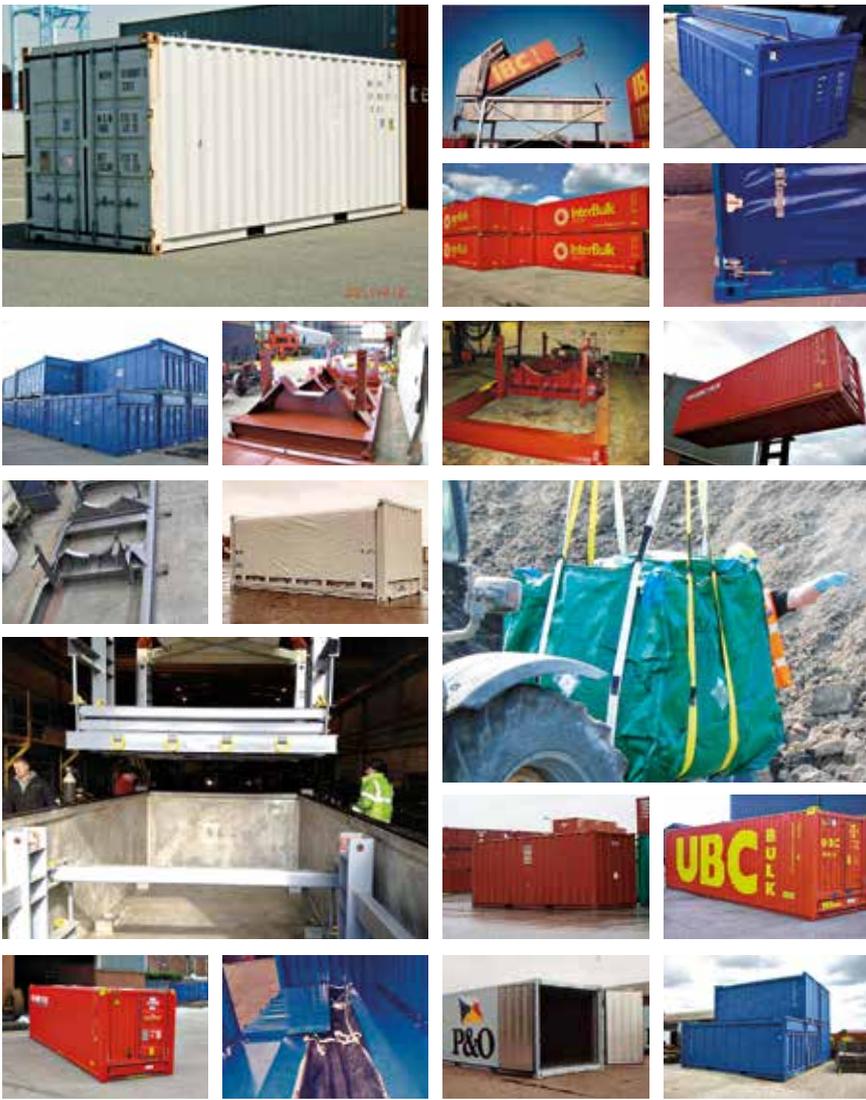


Waste route

Alternative options

LLWR have access to the supply chain with the provision of multi discipline variants of soft sided packages, ISO containers and drums





TC06 – 2/3 ISO container
(Currently unlicensed)



TC04 – 3/4 ISO container
(Currently unlicensed)



Specialised restraint system design,
manufactured to restrain multi element
bottles into TC01 package designs

A full design and build option for any containerised products is also available to meet customer requirements and specification.

The range includes dry freight, open top, side access, bulkers, flats, flatracks, curtain sided, coil carriers, air operated top doors, in varying sizes 20ft, 30ft,

40ft, 45ft lengths and widths of 8ft 2.5m and 2.55m. These include purpose built nuclear waste containers and equipment.



Transport

LLWR Transport Service offers customers access to a portfolio of transport modal suppliers offering multi modal shipments to National and European destinations. The service encompasses road, road and sea, road and rail options. LLWR transport team will ensure the most cost-effective solution is supplied to meet customer needs, which will be compliant against all applicable standards and regulations. LLWR Transport Service is managed under a Framework contract which essentially gives customer access to a large resource and equipment pool of road, sea and rail transport options.

Road

LLWR Road Only Service offers logistic solutions using the equipment below. LLWR's role as an integrator offers customers a comprehensive service which provide up to a 1,000+ road shipments per year for the UK nuclear sector.

Road Haulage resources and equipment inventory:

- LGV drivers with ADR licences (including Class 7 entitlement)
- Two/three axle tractor units (Euro standard 5 or above) rated up to 44 tonnes
- Skeletal trailers up to 13.6m (fixed or extendable)
- Flat trailers up to 13.6m with (rated tie down features)
- Tautliner trailers up to 13.6m in accordance with BS EN12642 XL (Code XL)
- Side loader trailers with payload capability of 24Te.
- Specialist heavy haulage vehicles and trailers STGO Cat 1-3
- 7.5t vehicles with tail lifts (rated tie down anchor points)

LLWR also offers hauliers with ONR Class B Carrier status enabling the transport of CAT III nuclear material.



Road and sea

LLWR Road and Sea Service offers logistic solutions using Semi-Low Loader, Low Loader trailers which are able to transport ISO containers via roll-on/roll-off (RORO) ferries to European destinations. This service offers the transporting of packed ISO containers for processing at European treatment facilities and return of empty ISO containers direct to customer sites, inclusive of any in-transit storage as required.

Additionally if required LLWR can offer an ISO container CSC re-plating and ACEP inspection service at European treatment facilities sites to enable complaint returns of ISO containers back to the UK.



Containers on a roll-on/roll-off (RORO) Ferry

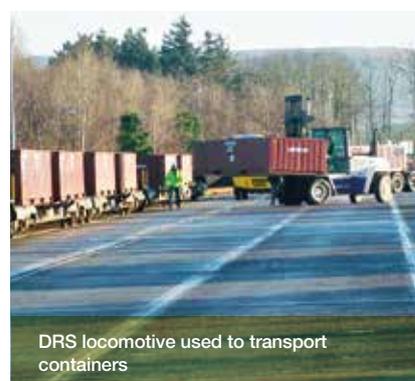
Road and Rail

LLWR Road and Rail offers a logistics solution using Direct Rail Services (DRS). The benefit of this service is DRS take on the management of the road and rail leg offering a compliant rail option, bringing economic and safety benefits. DRS has a uniquely flexible and efficient fleet of locomotives and rolling stock.

The DRS fleet consists of Class 68, 66, 57, 37, 88 and 20 locomotives offering unbridled flexibility across the UK rail network. DRS also offer rail transport using the new IDA 'Super' Lowliner twin platforms (ultra-low platform height) which offer 3 key benefits:

- Reduced CO₂ and increased fuel efficiency
- More containers for any given train length
- Increased network access and the ability to carry higher height ISO containers across the network

DRS are ONR Class B Carriers status and can offer transport of CAT III nuclear material.



DRS locomotive used to transport containers



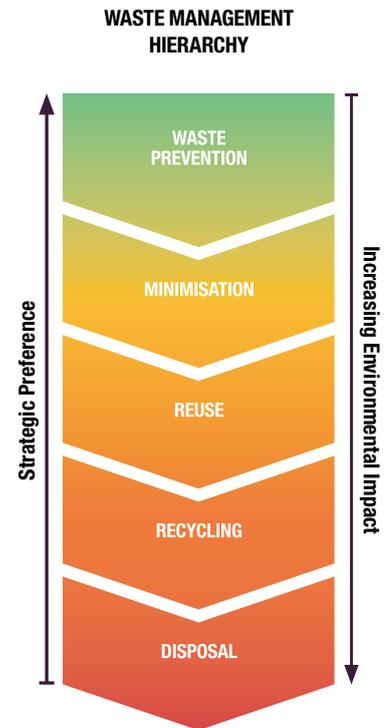
Train transporting containers

Waste route

The UK Strategy for the Management of Solid Low Level Waste from the Nuclear Industry requires waste producers to manage their LLW in accordance with the waste hierarchy. This requires consideration and utilisation of a range of methodologies to optimise their waste management processes and to make best use of existing assets. The aim of the strategy is to apply the waste hierarchy where practicable and minimise disposal of LLW.

In the UK, solid radioactive wastes are defined according to their radiological properties into three categories: low, intermediate and high level wastes. Low level waste (LLW) lies at the bottom end of the radiological spectrum and is a broad category, ranging from waste that has very low levels of radioactivity to waste that may

require engineered shielding. The UK's LLW national policy¹ also introduced a sub-category of LLW known as very low level waste (VLLW). This category of waste has activity levels that are at the lower end of the LLW activity limit and may be managed by disposal to suitably permitted conventional landfill sites.



Disposal

Low activity low level waste (VLLW) for diversion is defined as waste with activity levels up to 200 MBq/t.

Low level waste for disposal is defined as solid radioactive high volume very low level waste contaminated up to 4MBq/t total activity or 40MBq/t for tritium (H-3) total activity. VLLW for disposal is defined as waste that is not suitable for treatment or diversion or LLW that has already been treated or is secondary waste from a treatment process.

LLW Disposal

Our Low Level Waste (LLW) Disposal Service is for low level waste that cannot be treated, or residual wastes from a treatment process.

VLLW Disposal

Our Very Low Level Waste (VLLW) Disposal Management service involves the disposal of high-volume low activity waste at appropriately licensed commercial hazardous waste landfill sites.



Treatment

Recycling materials for further use presents a significant opportunity to the nuclear industry. Specifically, this strategy recognises metal treatment and recycling as the main opportunity in this area.

Metal treatment has been demonstrated to be the preferred option at a UK strategic level when resource preservation, best use of disposal capacity and environmental responsibility are considered.

Recycling should be the preferred way forward for the treatment of this waste; recognising that the waste producer must make a BAT case to confirm the validity of the option for a specific waste population. Implementation of the waste hierarchy is mandated by policy and environmental regulation throughout the lifecycle of a facility and is recognised as good practice in all aspects of radioactive and non-radioactive waste management. It is also an essential consideration for determining BAT.

Whilst volume reduction is not formally a step in the waste hierarchy, it has an important role to play in the provision of optimised disposal. Reducing the volume of the waste to be disposed is an effective way of achieving this.

Metallic Waste Treatment

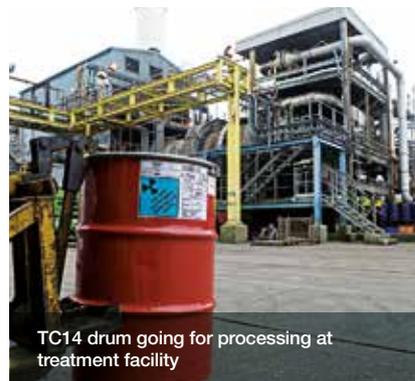
Our Metallic Waste Treatment Service provides opportunities for our Customers to recycle metallic waste. This is good for the environment, a more efficient use of resources, and gives Customers greater flexibility in the management of LLW.



Segregated waste in TC01 prior to shipment for metallic treatment

Combustible Waste Treatment Service

Our Combustible Waste Treatment Service uses thermal treatment to reduce LLW disposal volumes. This gives Customers the potential for greater cost efficiencies and results in less waste being disposed of at the LLWR Site.



TC14 drum going for processing at treatment facility

Supercompactable Waste Treatment

Our Supercompactable Waste Treatment Service minimises the volume of LLW to be disposed of at the LLWR Site. This waste is subject to high force compaction which reduces the overall volume by up to 70%.



Drums after supercompaction at treatment facility loaded in a half height ISO container



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