Manufactured Products Partnership (MPP)

Sellafield Ltd

Market Engagement & Testing Autumn/Winter 2023

Sellafield Ltd

Contents

- About Sellafield Ltd & current situation
- What is needed?
- Desired Outcomes
- Aims and Objectives
- Manufactured Products to be procured
- Demand profile
- Procuring for Capabilities
- New Product Introduction (NPI)
- Timescales
- Questions to Suppliers
- Images of Manufactured Products

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About Sellafield Ltd & current situation

- Sellafield Ltd (SL) are responsible for taking waste out of buildings that are as old as SL itself, dealing with the legacy of our nuclear past. SL look after fuel so that nuclear power stations can continue to operate and are repackaging the country's stockpile of nuclear materials.
- At present the repackaging of the nuclear materials have separate supply agreements in place for each of the Manufactured Products. This has created:
  - Additional costs to both SL and organisations tendering for this work
  - Not allowing SL to focus on value-add activities such as social value, employment opportunities and sustainability
  - Long term collaborative contract management and strategic relationships have not been built due to shorter contract lengths
- A strategic decision has been taken by SL's Supply Chain Directorate and the Manufactured Products Organisation that all future products will be procured through the future manufactured products commercial vehicle – which is called the Manufactured Products Partnership (MPP). This includes the 3m3 Boxes and Decommissioning Contact Handleable Intermediate Level Waste (CHILW) containers as the immediate demand (contracts required from circa 2028) and a range of future products required when existing contracts expire, or new containment solutions are matured.
- Links to SL's Enterprise Strategy 2020 and the Nuclear Decommissioning Authority's Strategy are below which provide strategic context and the importance of the Manufactured Products to the SL mission:

Sellafield Ltd Enterprise Strategy 2020 - GOV.UK (www.gov.uk)

Nuclear Decommissioning Authority Strategy effective from March 2021 - GOV.UK (www.gov.uk)

What is needed?

For the MPP to be successful SL firstly needs to understand what the state of the market at present and the appetite MPP. There are several activities to do at these early stages to start gathering intelligence from the market:

1. Understand who operates in the market, building on the knowledge of incumbents, new entrants, members of the supply chain.
2. Share with the market the Manufactured Products and demand forecast.
3. Understand the specific nuances of the Manufactured Products, from how things are done currently to new ways of working.

All this needs to be tested with the market to gather feedback and inform the next stages of the process to make sure that it will work for both SL and suppliers.

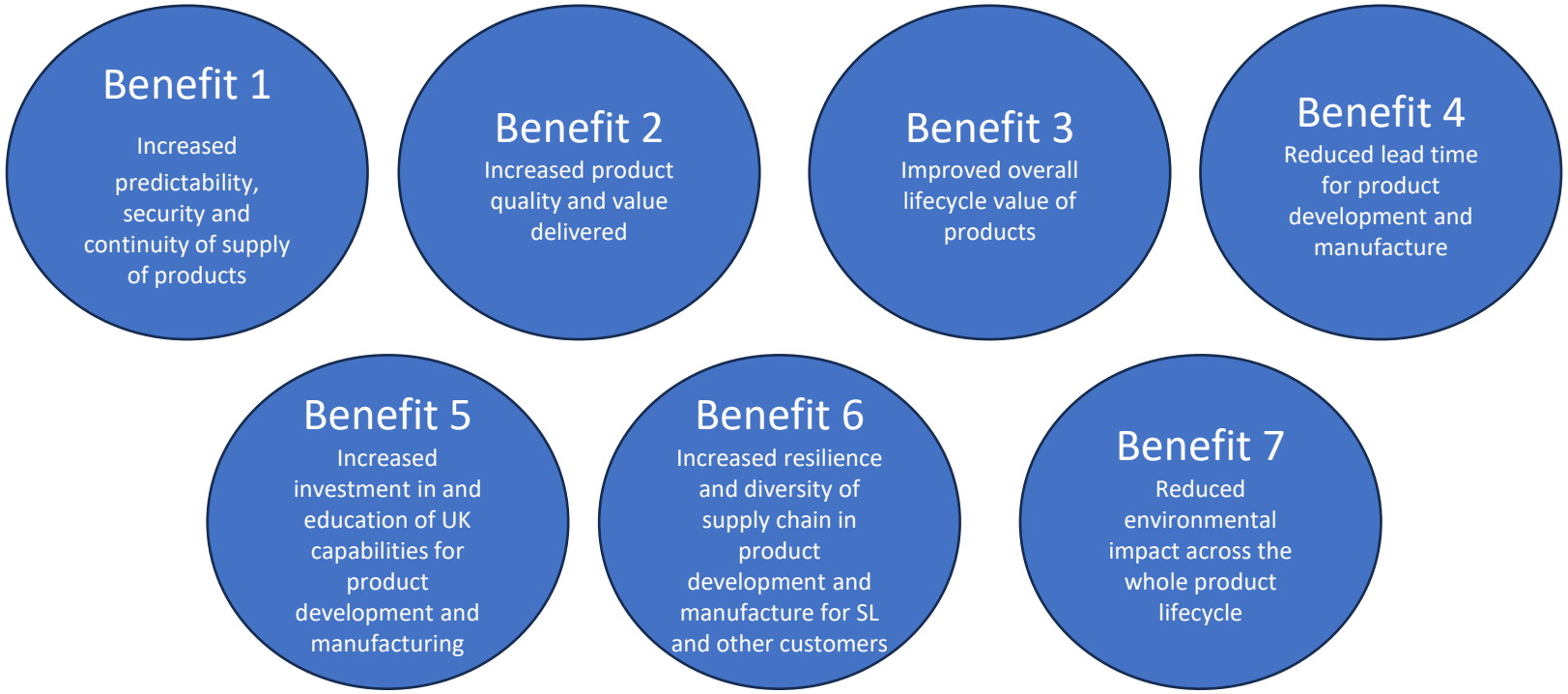
Desired Outcomes

- The scope of the Manufactured Products is estimated to be £2billion over a 20-year duration, so SL want close collaboration with suppliers to work strategically to meet the needs of the organisation.
- Suppliers will be involved early in the detailed design process (NPI phase 3) so they can add value to the Manufactured Product.
- This will be a new way of working for SL and the supply chain which should help to foster strong commercial relationships and deliver against the indicative Critical Success Factors and target benefits.
- For general enquiries about MPP please use the following email address:

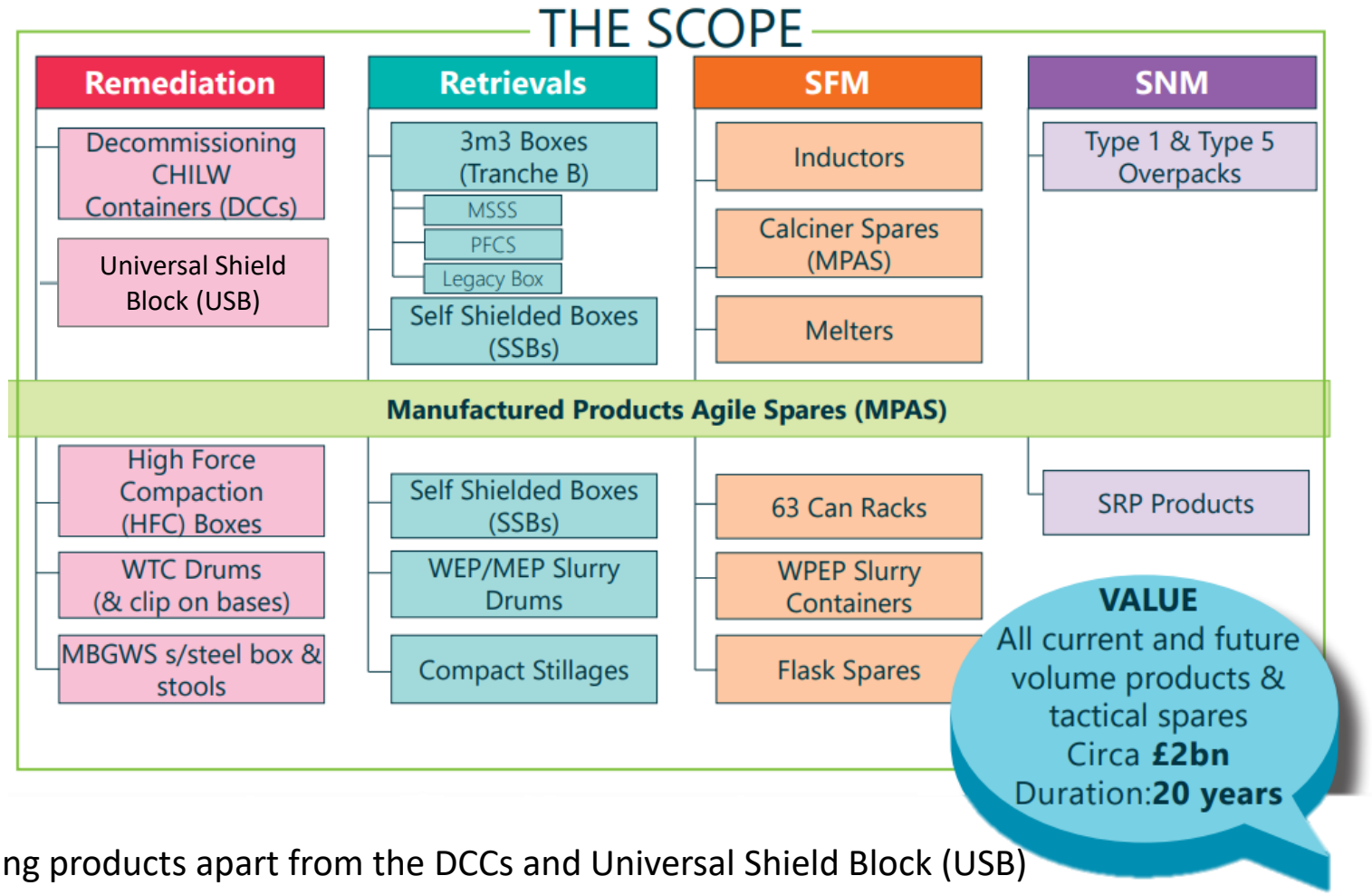
mpp.info@sellafieldsites.com

Aims and Objectives

MPP will have a golden thread running through it to ensure that strategic targets are met and aligned. Below the are the *indicative* 7 target benefits from the business case. Benefits 1 & 2 are Risk Mitigation and the rest are opportunities.



Manufactured Products to be procured



All products are existing products apart from the DCCs and Universal Shield Block (USB)

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Demand profile

- Please refer to the excel spreadsheet ‘MPP Demand Profile’.
- The demand for each product is only indicative and does not represent any finalised demand figures. These numbers will change based on the market engagement undertaken and as SL mature their models.

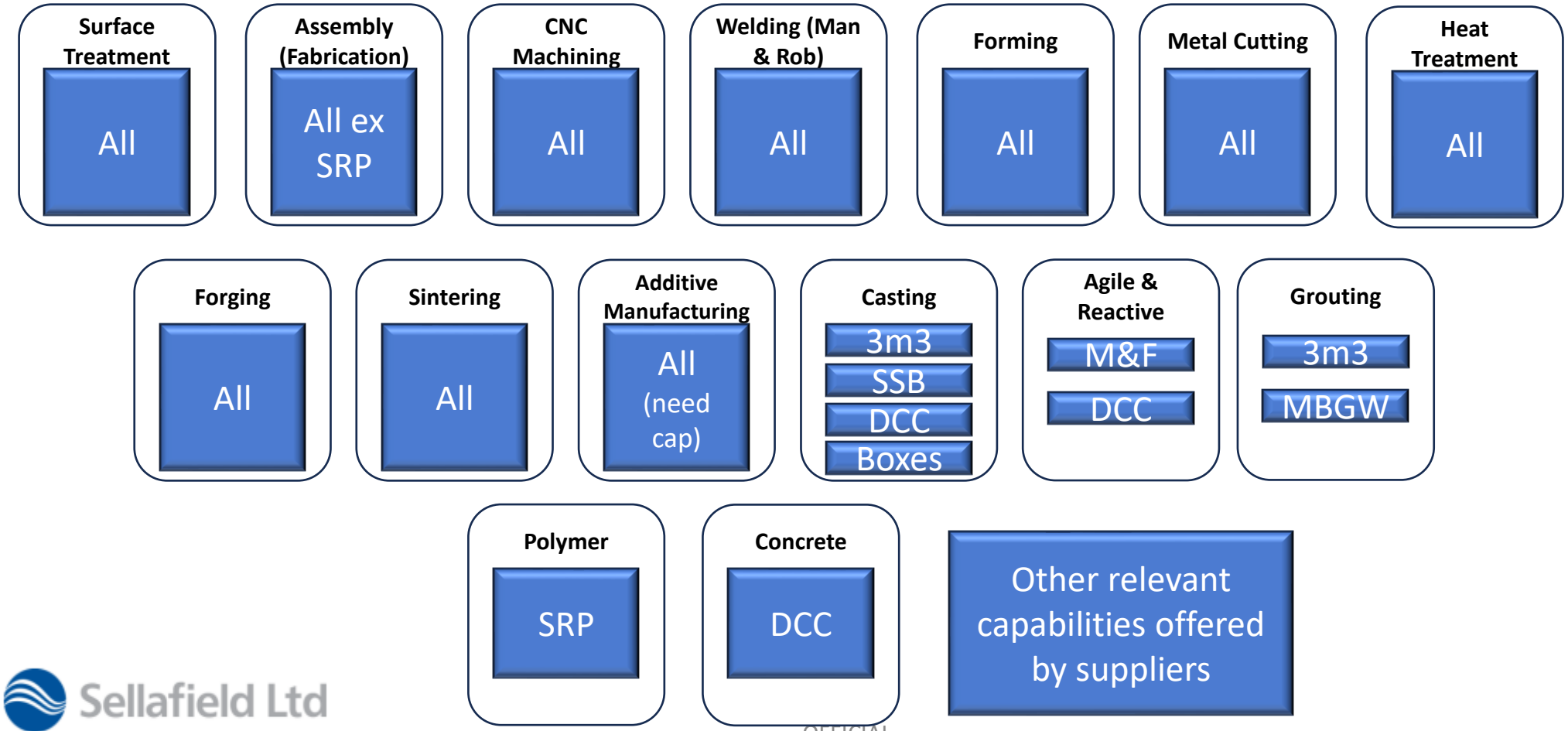
Procuring for Capabilities

The below are the general capabilities expected from suppliers across the Manufactured Products range

NPI Process / APQP / Production line design	**Manufacture ability assessment** Supplier input to the design	**Interim Storage**	**Logistics**
Project Management	**Quality Inspection & Assurance**	**Raw Material Management**	**Contract Management** • Performance • SME • SRM
CE Marking	**Education & Training**	**Innovation** Technology selection, early concept designs	**Radiography / Metalogy**

Procuring for Capabilities

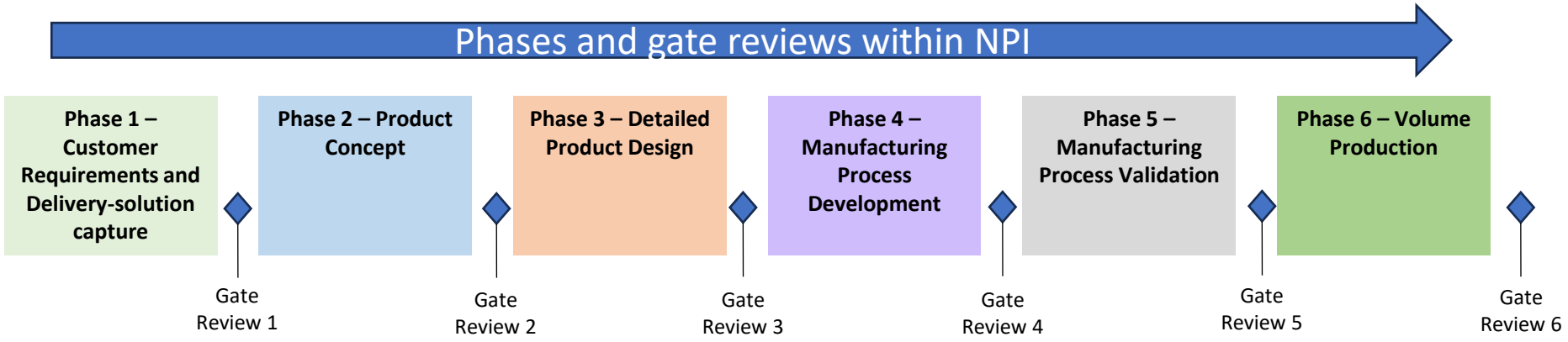
The below are the manufacturing capabilities expected from suppliers across the Manufactured Products range



Supplier Manual & New Product Introduction (NPI)

MPO have introduced the New Product Introduction (NPI) process to enable the development, manufacture and supply of volume manufactured products, from capable and repeatable manufacturing processes. NPI consists of six phases with gateway reviews as shown below. The supplier is normally engaged at the end of Phase 2, however with MPP it is likely that this will be brought forward to Phase 1.

SL have introduced the Volume Products Supplier Manual which prescribes the Advanced Product Quality Planning (APQP) methodology for the introduction of new products, in line with the NPI process. This defines a common set of standards and processes to ensure the development and quality of volume manufactured items throughout their lifecycle, while achieving value for money for the UK taxpayer.



Supplier Manual & New Product Introduction (NPI)

The below table describes the deliverables of the supplier from phases 3 – 6

Phase	Phase Title	Phase deliverables
3	Detail Product Design	• Design for Manufacture (DfM) input into detailed design and specifications • Concept design of manufacturing process • Prototyping of products or components (where required)
4	Manufacturing Process Development	• Establish manufacturing capability and validate production of compliant products • Supply Sellafield Ltd with low-volume off-tool products to support MP inactive commissioning (consumable products only) and Design Validation, Planning and Report activities (used to substantiate the products against their functional and safety case requirements)
5	Manufacturing Process Validation	• Manufacturing capability validation while running at rate • Supply of products manufactured during process validation to support MP active commissioning
6	Volume Production	• Initial supply of products to Sellafield Ltd against the contracted demand profile • Continuous improvement activities and issue management • Project phase close

A copy of the Supplier Manual can be found on Atamis.

Timescales

All dates are subject to change and are only indicative

- Publish details to the market – 06/10/2023
- Atamis communication/responses to initial questions – 06/10/2023 – 27/10/2023
- Follow up questions via Teams calls “Lines of Enquiry” – 30/10/2023 – 10/11/2023
- Site visits (as necessary) – 30/10/2023 – 10/11/2023
- Engagement Day – circa December 2023 / January 2024

Contracting Model

- At this first stage of market engagement, SL want to focus on the Manufactured Products their respective demand and capabilities to ensure that the fundamentals of what SL want to procure are viable.
- Once the first stage of market engagement is completed and we have a better understanding of ‘the lay of the land’ SL will start to focus on the contracting model at the second stage of market engagement where optioneering will be in the spotlight. Contracting models that will be considered (although not exhaustive) are:
  - Framework
  - Alliance
  - Partner

Questions to Suppliers (please complete teams form)

https://forms.office.com/Pages/ResponsePage.aspx?id=1gqPSDHc10-0q7fJ-XUxypA9s4-xfDNPsB0V0rRsqIhUQUE2QkhBSU9IR1owMUozSFFMMFdLRUlHQSQlQCN0PWcu

1. Please state (tick) which products your company is interested in discussing, referring to the Manufactured Product images. This can be for a product(s) that you currently manufacture, products you would be interested to manufacture in the future.
2. If you don't currently manufacture these Manufactured Products, please list which ones you could manufacture?
3. About your company (company name, contact details, size - staffing and turnover, location - head office and manufacturing sites)?
4. Which industry sector currently provides you with the greatest proportion of your organisation’s revenue (please specify)?
    I. If your organisation has manufactured complex, highly regulated products at volume, please describe the type of product and provide quantities. If not any other products at volume.
5. Regarding the demand profile, what changes would need to be made to achieve the rates of production (manufactured product specific)?

Questions to Suppliers

6. What tools/jigs/machinery do you currently have? Some of the Manufactured Products are large and therefore need a lot of space for the manufacturing of these - what square footage do you have available at your factory and is there any ability to expand? Would there be space for a dedicated production line (either in the existing footprint or if the factory were to be expanded)?
7. Based on the overall demand of SL for Manufactured Products is there capacity within your organisation/supply chain to deliver SL's scope at its peak against overall UK demand, including raw material requirements (e.g., 316, duplex steel etc.)?
8. SL want to explore the capability of suppliers being able to store components or products on their site to allow for rate of production to be managed locally - is there existing space for this within your factory (product dependant) for storing components/products?
9. In relation to supply chain management what tools/techniques do you use to ensure that risks are mitigated, bottlenecks avoided and continuity of supply i.e., maintaining supply chain maps, risk assessments, tracking D&B failure and delinquency scores etc?

Questions to Suppliers

10. What do the supply chain see as the biggest risks - threats and opportunities in UK manufacturing over the next 10 years? And what actions can SL take that will help to alleviate risks identified?
11. Regarding Social Value, what does your organisation currently do to benefit local communities, employment opportunities, upskilling, environmental considerations etc?

Questions to Suppliers

12. Regarding New Product Introduction (NPI) and Advanced Product Quality Planning (APQP) does your organisation have experience of utilising these processes? If so, how mature is your organisation at using these processes to manufacture capable and repeatable products, what APQP documentation is used to develop and control your manufacturing processes (Flow through from Process Failure Modes and Effect Analysis (PFMEA), Control plan, to Work instructions). If your organisation does not use APQP please describe your current manufacturing/planning process, and your views on whether APQP could be implemented in your organisation and your supply chain?
13. Currently within your organisation is NPI:
    I. Embedded as business as usual
    II. Used for specific customers
    III. Currently being rolled out across the organisation
    IV. Not used
14. How does your organisation deal with fluctuations in demand to prevent periods of 'stand-down'?

Images of Manufactured Products

Magnox Swarf Storage Silo (MSSS) 3m^3 Waste Container Key Features and Functions

Waste Container Lid Bolts

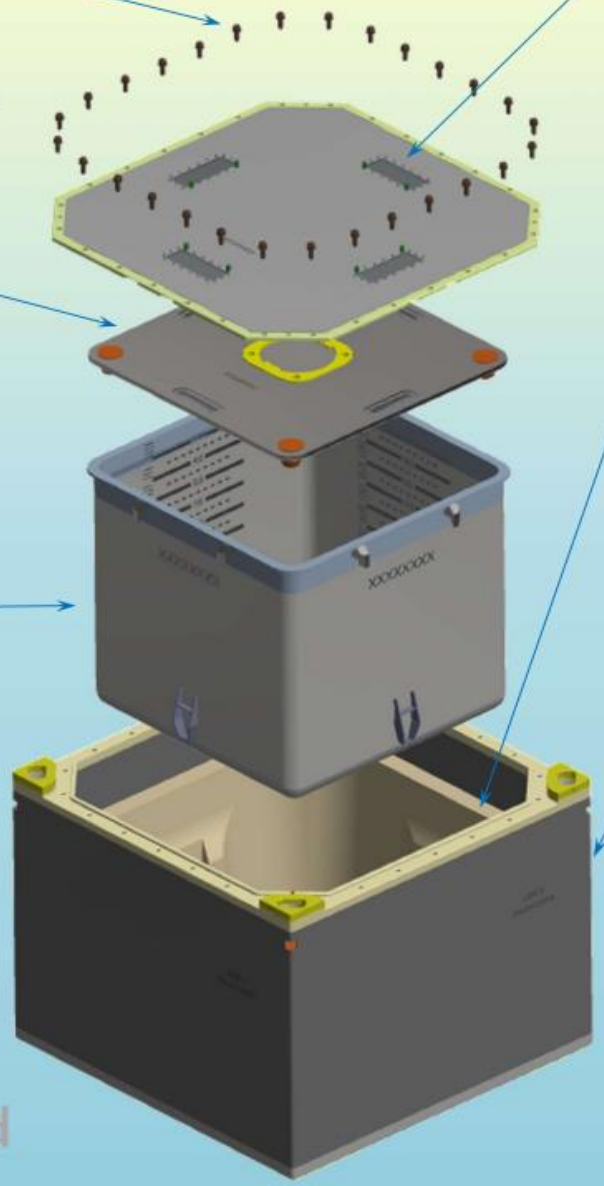
- **Strength and quantity.**
  - **Evenly clamp the lid down onto box to provide nuclear containment.**
  - **Contribute to deflagration withstand and drop performance.**
- Interface features and modified thread.
  - Allows installation by remote handling equipment and prevents cross threading.
- Coating.
  - Prevents seizure to ensure Bolts can be removed for finishing and final disposal.

Waste Container Skip Lid

- **Filters.**
  - **Ensures safe release of hydrogen produced by waste whilst limiting contamination spread.**
- **Robot Handling Features.**
  - **To enable remote handling**
- **Seal.**
  - **To ensure gases are directed through filters**
- Alignment Dowels.
  - To ensure accurate placement on skip to limit overhang and ensure seal contact.
- ID Markings.
  - Allows tracking / traceability of component.

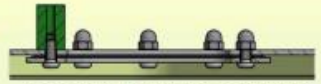
Waste Container Skip

- **Fill Level Markings.**
  - **Operator aid to inform correct quantities of waste loading.**
- **Lifting Lugs / Grapple location features.**
  - **Allows to be handled by interfacing equipment**
- Guidance Features.
  - Allows for accurate location of skip in box and on interface plants.
- **High-integrity material (Duplex) and weld seams / no crevices.**
  - **Maximise liquor retaining life / minimise corrosion potential.**
- Geometric control of shape.
  - Ensures that it fits with all interfacing equipment.
- ID Markings.
  - Enables tracking and traceability of nuclear waste.



Waste Container Lid

- **Filters**
  - **Ensures safe release of hydrogen produced by waste whilst limiting spread of contamination.**
- **Spacers (see top right)**
  - **To ensure gap between Waste Containers when stacked (for hydrogen egress).**
- **Lifting features.**
  - **Enables safe handling by remote handling equipment.**
- ID markings.
  - Allows tracking / traceability of component.
- Interchangeability.
  - Can be fitted to any Waste Container flange.
- Machined flange and spigot.
  - Prevents bolt failure in drop load case.
  - Limit ingress of oxygen for fire case.

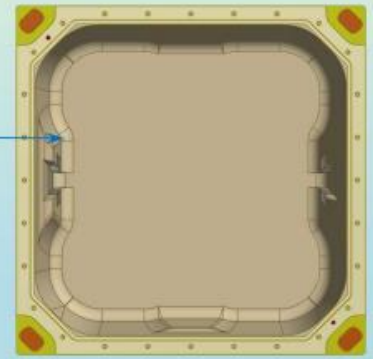


Section view illustrating spacers (in green)

Key
Contributes to Safety.
Operationally Important.

Waste Container Bund

- Cast in situ.
- Guidance Slots.
  - Provide accurate location of skip
- Metallic inserts.
  - Ensures robustness during loading, transport and future finishing.
- Location faces.
  - Prevent skewing of skip during loading.
- **Made of high pH grout**
  - **Mitigation against corrosion mechanisms (MIC).**



Plan view of waste container body with bund inside

Waste Container Body

- **Lifting Features.**
  - **For safe handling of nuclear waste and matches all other Waste Container types.**
- **Machined spigot / flange / dowels.**
  - **Machined spigot prevents bolt failure in drop load case.**
  - **Dowels align the lid for remote installation.**
  - **Flange provides sealing face to lid to limit spread of contamination and limit ingress of oxygen for the fire case.**
- **High-integrity material (Duplex) and weld seams / no crevices.**
  - **Maximise life / minimise corrosion potential.**
- Feet.
  - Ensures box fits with all interfacing equipment and for alignment during stacking.
- **Stacking posts.**
  - **Allow boxes to be safely stacked.**
- Twistlock drainage pockets / holes.
  - Keeps lifting clear of debris.
- ID Markings.
  - Allows tracking / traceability of nuclear waste.
- Bolted assembly.
  - Allows for finishing in the future final placement in Geological Disposal Facility (500 year life).

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Version. C1-22 Variant. August 2022

Note: all colours are for illustrative purposes

Legacy (Waste) 3m^3 Waste Container Key Features and Functions

Key
Contributes to Safety.
Operationally Important.

Lid Bolts

Features

- **Strength and number.**
- Interface features and modified thread.
- Coating.

Function

- **Evenly clamps the lid down to box to provide nuclear containment. Provides deflagration and drop load performance.**
- Allows installation by robots and prevents cross threading.
- Prevents seizure.
- Allows finishing for final disposal.

AFP (Anti Flotation Plate)

Features

- Self weight.
- Robot Handling Feature.
- Mesh cut outs.
- Radar zone.

Function

- Retain buoyant objects.
- To be handled by robots.
- To allow free flow of grout and fill level visibility.
- Fill Level detection for grout cut off.

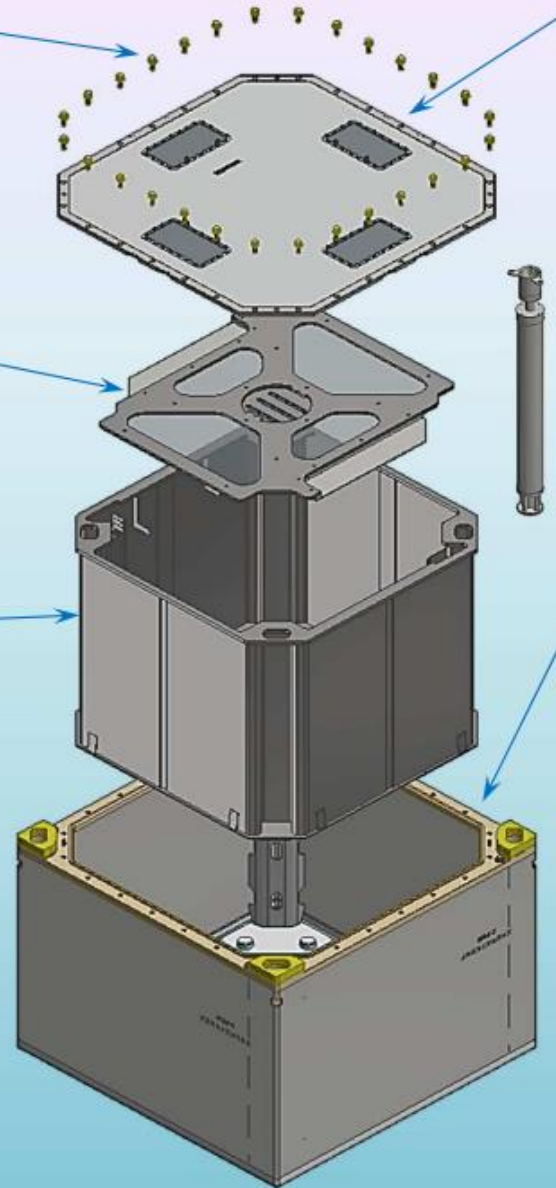
Liner

Features

- **Fill Level Markings.**
- **Lifting features.**
- **High-integrity material and weld seams / no crevices.**
- Orientation specific
- Decant Filter pocket.
- Decant pocket.
- Geometric control of shape.
- ID Markings.

Function

- **Ensures safe quantities of waste are loaded.**
- **Provide safe handling by In-Cell transporter.**
- **Maximise liquor retaining life / minimise corrosion potential.**
- Facilitate Grout encapsulation within WTC within BEP.
- Facilitates Liquor removal by remotely deployed suction nozzle.
- Facilitates Bleed water removal by remotely deployed suction nozzle.
- Ensures that it fits with all interfacing equipment.
- Enables tracking and traceability of nuclear waste.



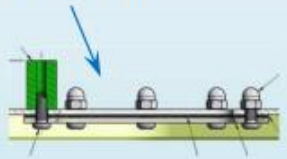
Box Lid

Features

- **Filters**
- **27mm spacers to ensure gap between boxes when stacked (for Hydrogen release).**
- **Lifting features.**
- ID markings.
- Bolt/Dowel holes and flange location step.

Function

- **Retains nuclear waste 'in the Box' (nuclear containment)**
- **Ensures release of Hydrogen for safety.**
- To be handled by robots.
- Can be fitted to any Box flange (controlled tolerances).
- Allows finishing and final disposal.



Box Body

Features

- **Lifting Features.**
- **Machined Flange / dowels.**
- **High-integrity material and weld seams / no crevices.**
- **Stacking posts.**
- Feet.
- Twistlock drainage pockets / holes.
- ID Markings.
- Grout Port.
- Blanking Plug.

Function

- **Safe handling of nuclear waste and matches all other box types**
- **Machined spigot prevents bolt failure if dropped (nuclear containment). Dowels align the lid for remote installation. Flange provides sealing face to lid.**
- **Maximise life / minimise corrosion potential.**
- **Allow boxes to be safely stacked.**
- Ensure that it fits with all interfacing equipment and alignment during stacking.
- Keeps lifting clear of debris.
- Allows tracking / traceability of nuclear waste.
- Allows waste container 'finishing' for compatibility with final placement in Geological Disposal Facility (500 year life).
- Allows finishing without Lid removal.
- Maintains Waste Container Integrity.

Legacy (Waste) 3m^3 Waste Container Configuration Overview

Box Lid
Identical to MSSS Waste Container Lid.

Lid Bolts
Identical to MSSS Waste Container Lid Bolts.

AFP (Anti Flotation Plate)
Bespoke BEP item optionally used to stop buoyant items (in grout) from floating when Pond Skips in Liners are grouted..

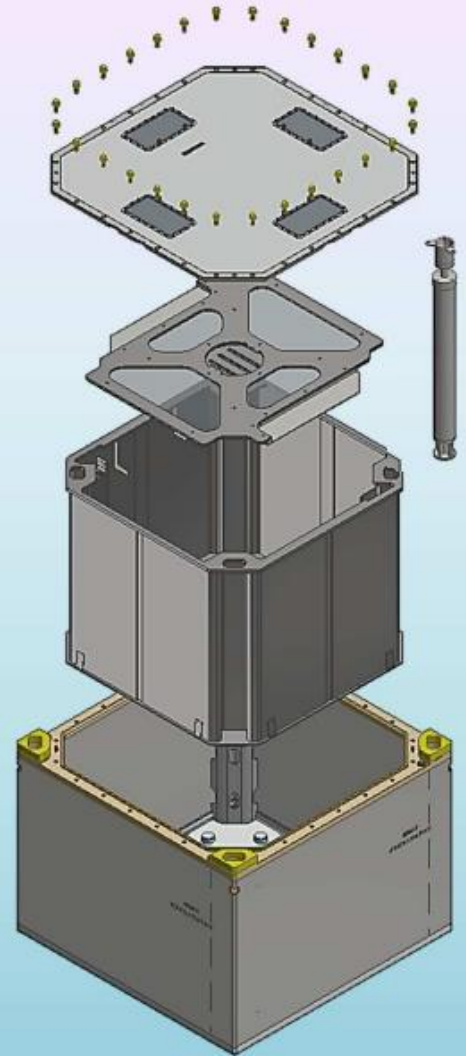
Liner
Bespoke BEP item used to locate Pond Skip and grouted as per BEP normal operations. The liner (fitted with Filter) will be used as an Effluent Collection container which will be dewatered and the sludge heel grouted.

Filter module
Bespoke BEP item used to facilitate liquor removal by means of remotely deployed suction nozzle at Setting Liner Position (SLP) and Setting Liner Decant Position (SLDP).

Box Body
Near identical to MSSS Box Body.
Key differences – no Bund, grouting ports to allow finishing without Lid removal, and minor furniture to locate liner and stand it off Box base.

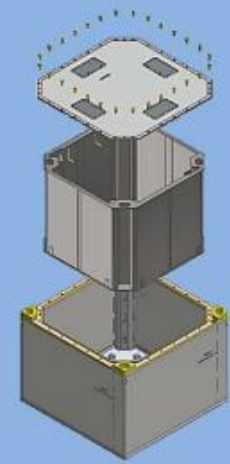
Pond Skip (Not Shown)
Existing Container Waste currently held in Ponds e.g. FGMSP, different types with varying dimensions. The Pond Skip will be considered part of the Waste.

Total Quantities:
Baseline 1344, Max 2034, Min 415
(Ref: DEC-04748 – Author: James De Wolf)

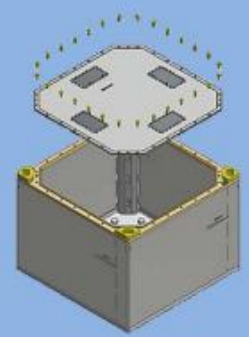


CONFIG L4
Legacy Waste Container with Liner inc.1 x Filter module and AFP (for Pond Skips)

CONFIG L1
Legacy Waste Container with Liner, AFP (for Pond Skips)



CONFIG L2
Legacy Waste Container with Liner (for Zeolite Skips)



CONFIG L3
Legacy Waste Container (for large Maintenance Waste e.g. SEP Package Seal Diaphragm Plate)

CONFIG L5
Legacy Waste Container with Liner (inc.2 x Filter module) and AFP (for effluent vessel returns)

Pile Fuel Cladding Silo (PFCS) 3m^3 Waste Container Key Features and Functions

Waste Container Lid

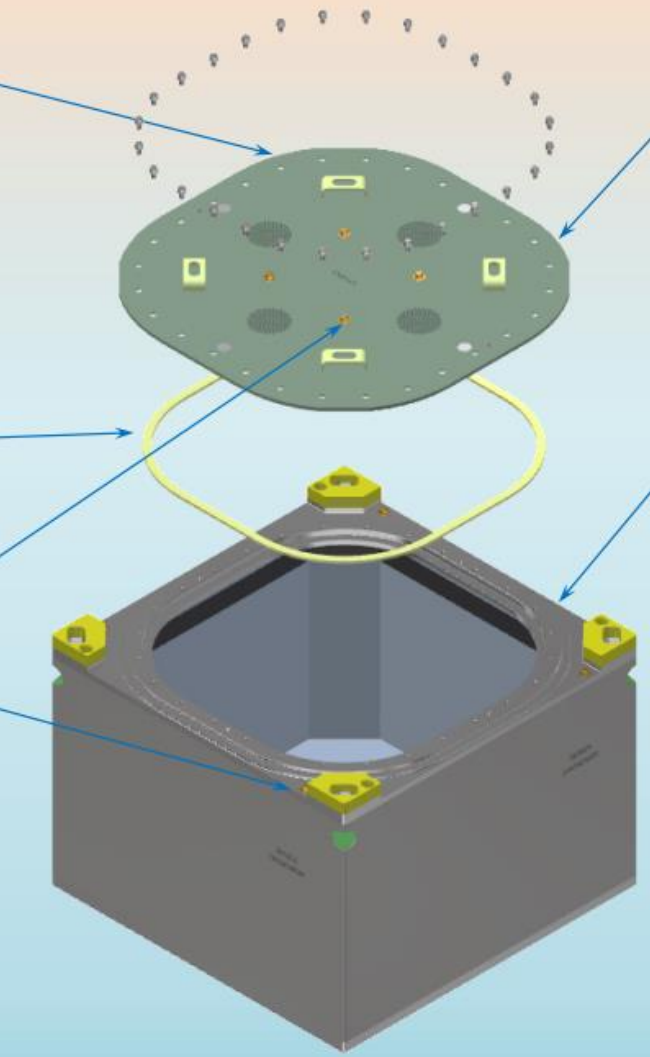
- **Filters.**
  - **Ensures safe release of hydrogen produced by waste whilst limiting spread of contamination.**
- **Lifting Features.**
  - **Enables safe handling by remote handling equipment.**
- ID markings.
  - Allows tracking / traceability of component.
- Interchangeability.
  - Can be fitted to any Waste Container flange.
- Machined dowels.
  - Dowels align the lid for remote installation.

Seal

- **Fixed Seal**
  - **Interfaces with Retrieval Plant Waste Loading Port.**

Matrix / Interspace Grout Blanking Plug

- Matrix Grout Port Plug
  - For insertion of grout into box to mix with waste.
- Interspace Grout Port Plug.
  - For base grouting at manufacturer to maintain Waste Container integrity.
  - Allows for interspace grouting at future date.
- Same size bolt head as Lid Bolts.
  - Reduces cell tooling / tool change operations.
- Interface features and modified thread.
  - Allows installation by remote handling equipment and prevents cross threading.
- Coating.
  - Prevents seizure to ensure Bolts can be removed for finishing.



Waste Container Lid Bolts

- **Strength and quantity .**
  - **Evenly clamp the lid down onto box to provide nuclear containment.**
  - **Contribute to deflagration withstand and good drop performance.**
- Interface features and modified thread.
  - Allows installation by remote handling equipment and prevents cross threading.
- Coating.
  - Prevents seizure to ensure Bolts can be removed for finishing and final disposal.

Waste Container Body

- **Lifting Features.**
  - **For safe handling of nuclear waste and matches all other Waste Container types.**
- **Machined spigot / flange.**
  - **Spigot prevents bolt failure in drop load case.**
  - **Flange provides sealing face to lid.**
- **High-integrity material (Duplex) and weld seams / no crevices.**
  - **Maximise life / minimise corrosion potential.**
- **Double Skin side wall and base.**
  - **Annulus side walls accommodate expansion of immobilised waste.**
- **Stacking posts.**
  - **Allow Waste Containers to be safely stacked.**
- Grout filled base annulus.
  - To maintain structural integrity / thermal barrier.
- Feet.
  - Ensures box fits with all interfacing equipment and for alignment during stacking.
- Twistlock drainage pockets / holes.
  - Keeps lifting clear of debris.
- Twistlock Dowel holes.
  - Dowel holes align with plant equipment for remote handling.
- ID Markings.
  - Allows tracking / traceability of nuclear waste.
- Bolted assembly.
  - Allows for finishing in the future final placement in Geological Disposal Facility (500 year life).

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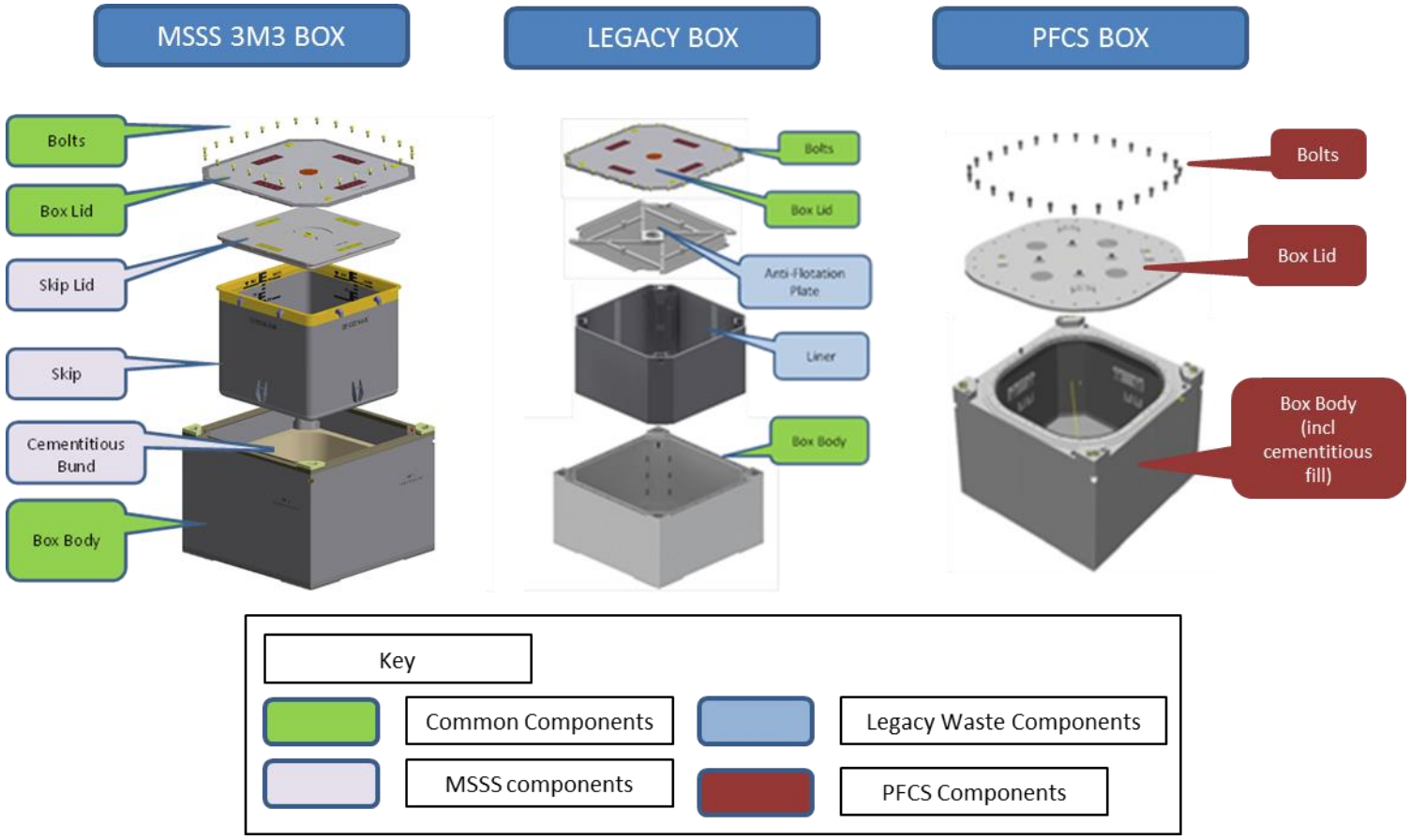
Key
Contributes to Safety.
Operationally Important.

Version 4. PFCS. August 2022

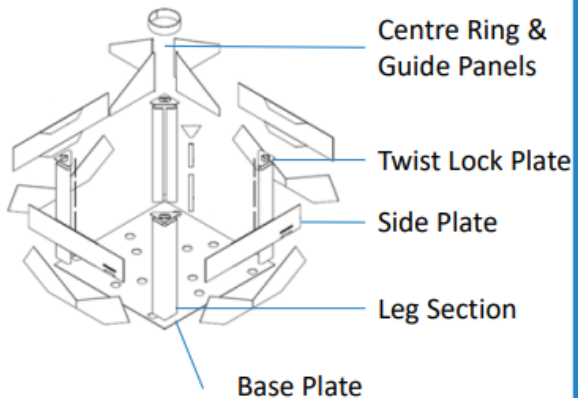
Note: all colours are for illustrative purposes

3m3 Box (side-by-side)



Compact Stillage

- Provides safe movement, storage and stacking ability for 500l High Integrity Stainless Steel Container (HISSC) drums
- Used for WEP, MEP and WPEP 500l drums



1.67 x 1.67 x 1.25m – 552kg empty

Manufacture Information

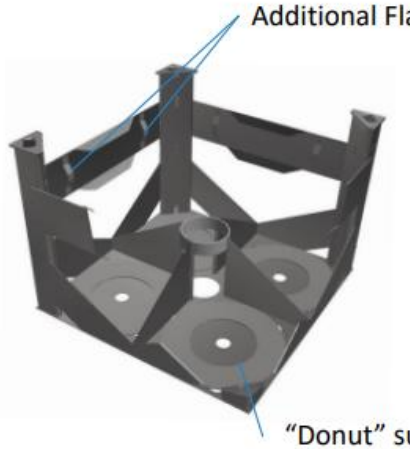
- Material – 316L Stainless (Steel Number 1.4403 BS EN 10088) conforming to HISSC standards

AGR (Hybrid) Stillage

- Provides safe movement, storage and stacking ability for 500l High Integrity Stainless Steel Container (HISSC) drums
- Used specifically for the AGR 500l drum
- Derived from the compact stillage – modified for the AGR drum – Additional flanges "donut" supports for the AGR drum

Standard Stillage

Hybrid Stillage



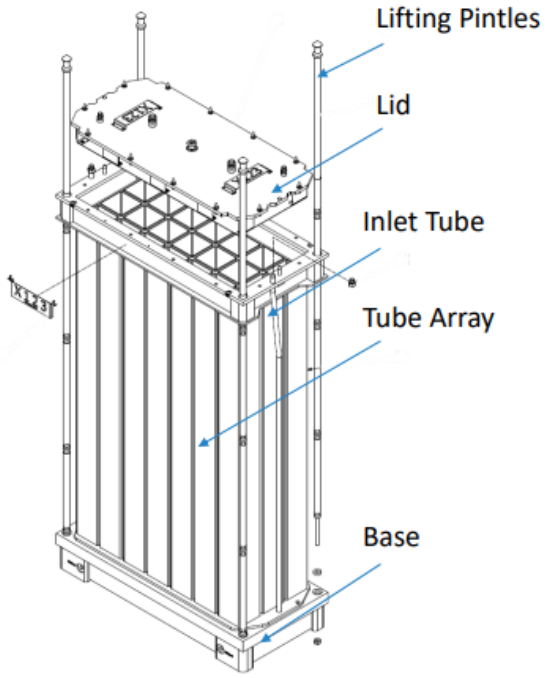
1.67 x 1.67 x 1.25m – 669kg empty

Manufacture Information:

- Material – 316L Stainless (Steel Number 1.4403 BS EN 10088) conforming to HISSC standards - Spec.Goods.H.0425_1

63 Can Rack (Hybrid 2)

- Enables power station defueling operations
- Holds 60 CAGR slotted cans (20 slots, 3 cans per slot) – The central slot is not used for storage.
- Designed for high density spent fuel storage in the TR&S pond
- Acts as a heat exchanger to passively cool fuel pins



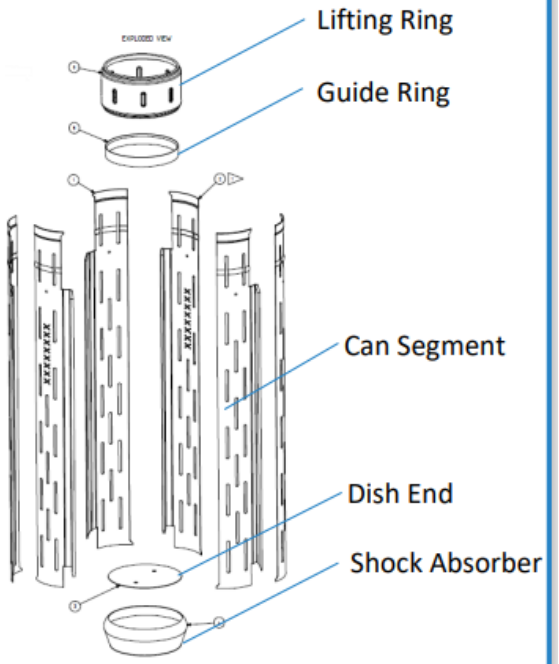
5.5 x 2.2 x 1.1 m – 7800kg

Manufacture Information

- Main body manufactured from 304L steel
- Hybrid 2 altered the lifting pintles. Full length pintles connected to the base reduces the number of load bearing welds & reduced inspection.
- Small diameter pintles for flexibility, allowing for lifting tool misalignment.

AGR Slotted Can

- Enables power station defueling operations
- Directly holds 108 spent Advanced Gas-cooled Reactor (AGR) fuel pins
- Slots allow for passive cooling of the fuel by convection
- Has multiple dimensions key to avoiding criticality



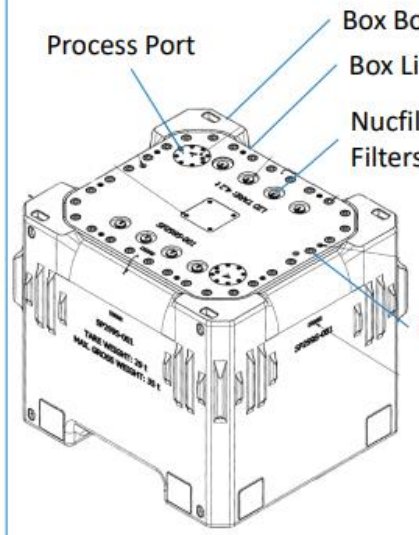
1.15m height x 0.247. diameter – 11kg

Manufacture Information

- Sheet Metal Construction – 304 L Stainless Steel (1.4307 BS EN 10088)
- Can segments laser cut to size
- Guide ring moved to eliminate criticality risk from tolerance noncompliance

Self Shielded Box (SSB)

- The SSB is a highly shielded box which has been designed to be stored in the Interim Storage Facility (ISF).
- The SSB will store and transport zeolite skips & legacy MAGNOX fuel.



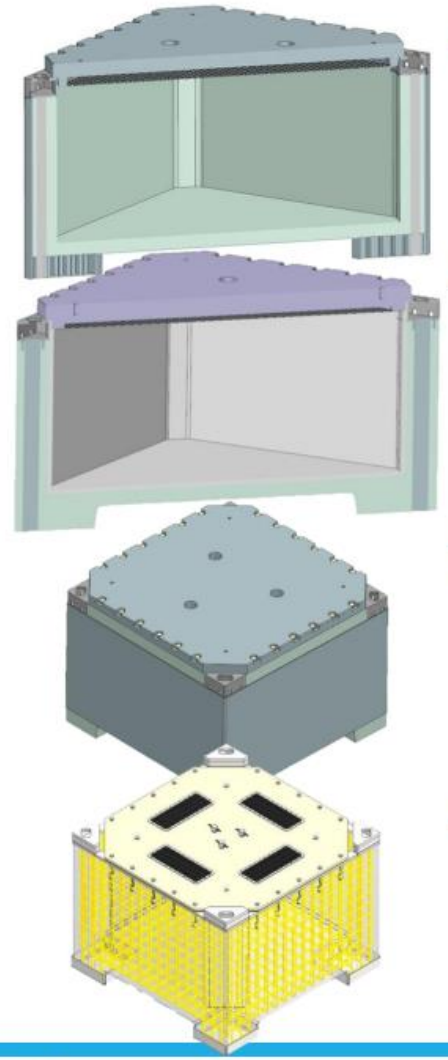
1.93 x 2.13 x 1.1.74m – 29,000kg empty

Manufacture Information

- Material – Ductile Cast Iron - minimum shielding of 245mm
- Manufacture Process – Sand cast lid & body
- The ISF has started taking receipt of SSBs

Decommissioning CHILW Container (DCC)

- Enables cost effective storage of Contact Handleable Intermediate Level Waste (CHILW)
- Four concept designs taken forward for further investigation
- Large future demand – upwards of tens of thousands of boxes expected



Metallic Container and Concrete Liner

- Steel outer provides added strength
- Very good raw waste drop withstand
- Utilises corner support bars for lifting & structural strength
- Cost: Mid range of concepts

Concrete Container, and Metallic Liner

- Steel inner provides added drop containment
- Good raw waste drop withstand
- Utilises corner support bars for lifting & structural strength
- Cost: Lower range of concepts

Concrete Container, Rebar and Metallic Wrap

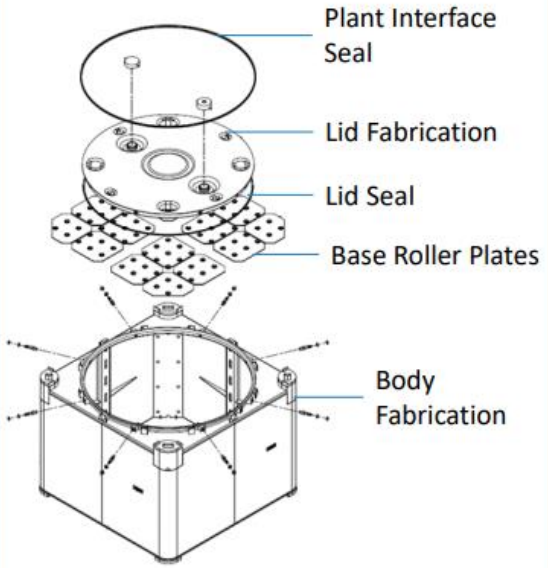
- Concrete container with steel wrap
- Wrap provides increased drop containment and may improve shielding
- Good drop raw waste drop withstand
- Cost: Mid range of concepts

Concrete Container with Rebar

- Concrete container with rebar re-enforcement
- Rebar improves structural strength & drop withstand
- Good drop raw waste drop resistance
- Cost: Upper range of concepts

MBGWS Box

- HISSC container for the Intermediate Level Waste Storage in the MBGW (Miscellaneous Beta Gamma Waste) Store
- Stacks within the MBGW Stool



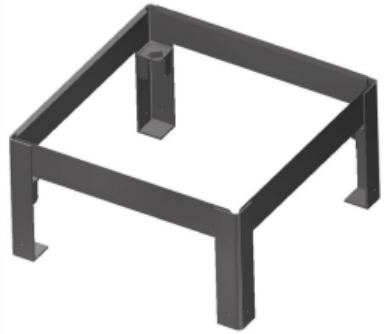
1.338 x 1.852 x 1.852m – 1335kg empty

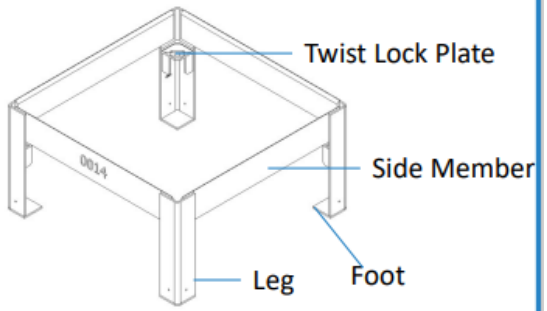
Manufacture Information

- Material – 316L Stainless (Steel Number 1.4404) conforming to HISSC standards - Spec.Goods.H.0427_1

MBGWS Stool

- Designed to hold Miscellaneous Beta Gamma Waste (MBGWS) Boxes stacked 3 high
- Allows the movement of stacked MBGWS boxes
- Provides ground clearance for lifting





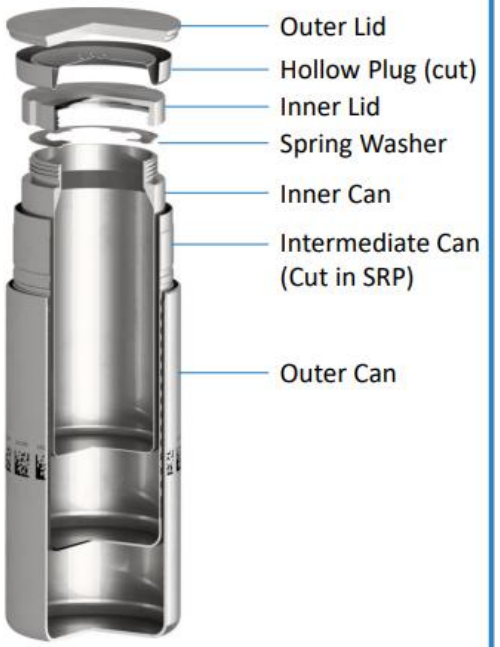
1.018 x 1.938 x 1.938m – 595kg empty

Manufacture Information

- Material – Stainless Steel (1.4003 BS EN 10088) - Spec.Goods.H.0427_1

100 Year Can

- Allows long term storage of Plutonium Product and Residue
- 3 nested cans provide containment for 100 years
- Packaged in SPRS Retreatment Plant (SRP)
- Outer designed to withstand the pressure of lifetime H_2 build up
- Inner can spring washer contains product but is breathable

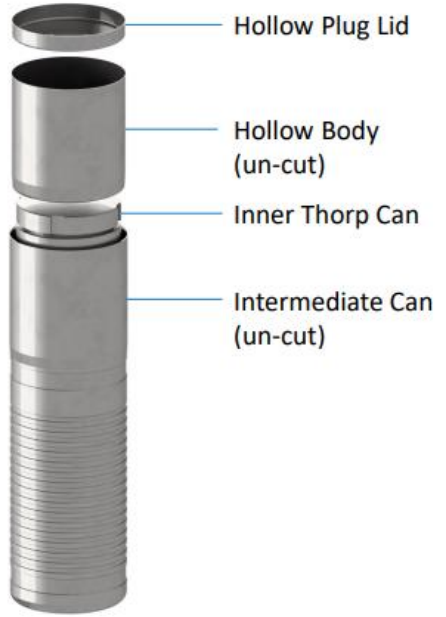


Manufacture Information

- Material: 316L stainless (Steel Number 1.4404)
- Intermediate can laser cut to size in cell (maintaining containment)
- Outer Lid TIG welded in SRP
- Inner is either a Magnox or THORP can (depending on retreatment)

100 Year Can – Intermediate Assembly

- Allows for export from filling glove box
- When exported, the assembly is laser cut between the hollow plug body and lid This maintains containment of the sphincter seal
- Grooves in can are for weight reduction only

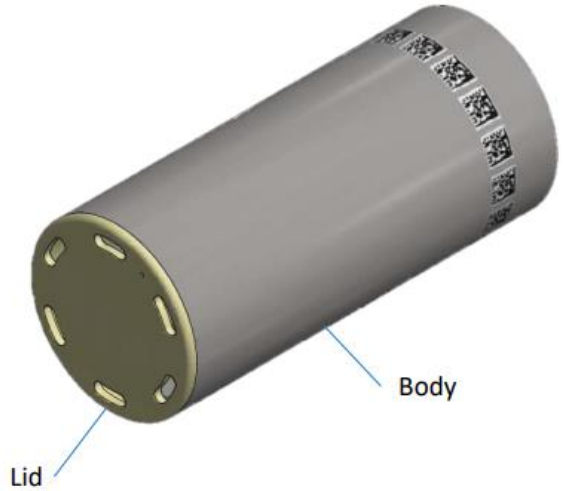


Manufacture Information

- Material: 316L stainless (Steel Number 1.4404)
- Hollow plug lid press fit & seam welded to hollow plug body
- Intermediate can laser cut to size in cell (maintaining containment)
- Inner can either Magnox or THORP can (depending on retreatment)

100 Year Can – SPC (SCP Package Carrier)

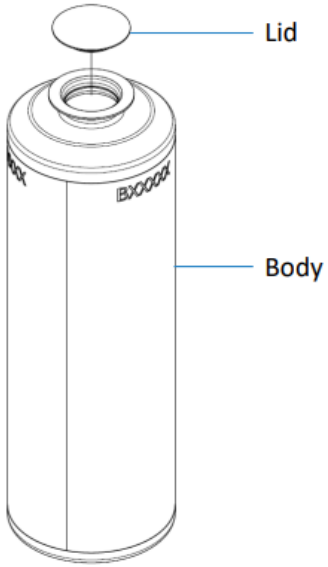
- Single use item
- Allows packages of various sizes to interface with SRP
- Currently in concept phase – aiming for polymer construction
- Strong enough to withstand shear impact



Manufacture Information
- Material: Polymer / Metal

WVP Container

- Stores vitrified Highly Active Waste (HAL)
- Provides safe containment within the Waste Vitrification Plant (WVP)
- Filled and welded shut for storage within the Vitrified Product Store (VPS) or for return to non-UK customers.

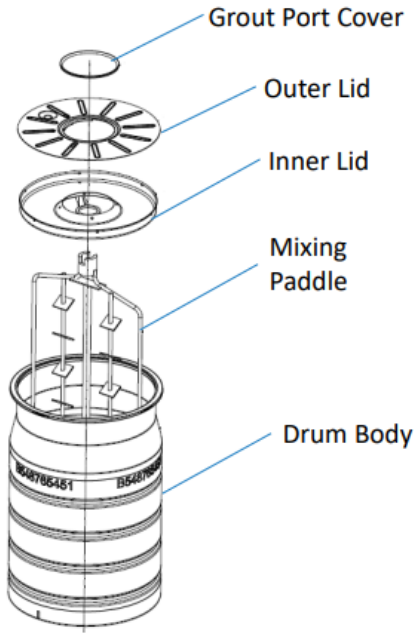


1339 x 430mm – 70-100kg empty
169 L internal volume

Manufacture Information
- Material – Stainless Steel Construction (1.4950 - ES_0_5529_2)
- All welds are 100% radiographed
- Surface is a polished finish

WPEP Waste Storage Drum – 500L

- The WPEP (Waste Packaging and Encapsulation Plant) Drum is a HISSC (High Integrity Stainless Steel Container) Product
- Encapsulates bulk material and residue from Floc storage tanks
- Stored within the WPEP Drum Store, Engineered Drum Store and the Lightly Shielded Store



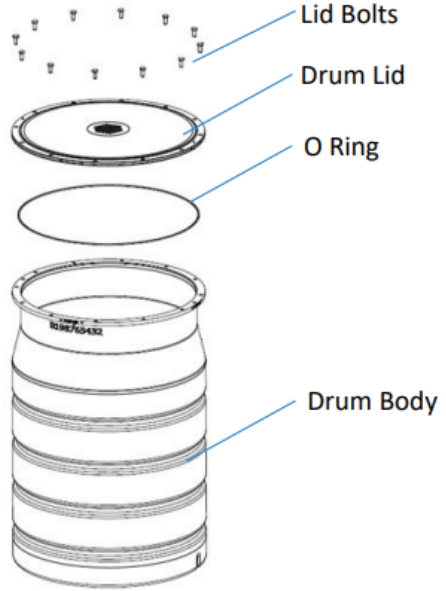
1.2m high x 0.8m diameter – 150kg empty

Manufacture Information

- Material – 316L Stainless (Steel Number 1.4404) conforming to HISSC standards – Spec.Goods,V.0360_2

WEP Scrap Drum – 500L

- A HISSC (High Integrity Stainless Steel Container) Product
- Stores grouted waste products from THORP and Retrievals
- Contains an integral filter within the lid
- Drums for storage within EDS, BEPPS/DIF & LSS



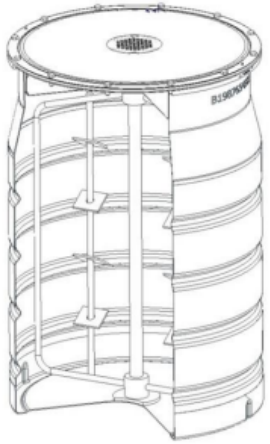
1.165m high x 0.8m diameter – 96kg empty

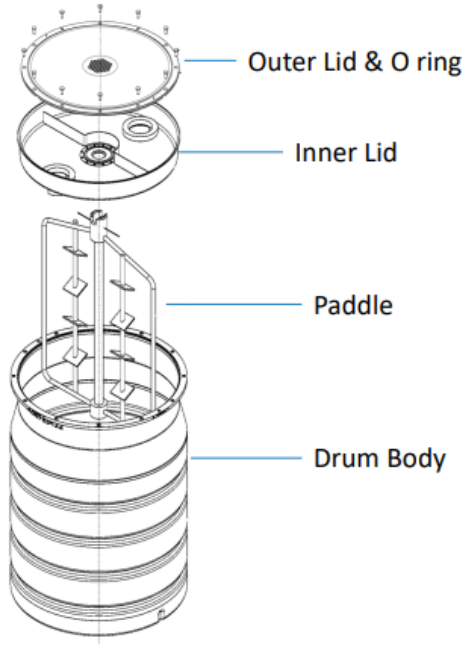
Manufacture Information:

- Material – 316L Stainless (Steel Number 1.4404) conforming to HISSC standards - Spec.Goods,V.0360_3

WEP Mixing / Slurry Drum

- Stores encapsulated THORP and Retrievals waste products
- Contains an integral filter within the outer lid assembly
- Mixing paddles are used to homogenise the slurry / cement during encapsulation.
- Waste is encapsulated in grout at WEP (Waste Encapsulation Plant)
- Filled drums are stored within the Encapsulated Product Stores (EPS)





1.2m high x 0.8m diameter – 134kg empty

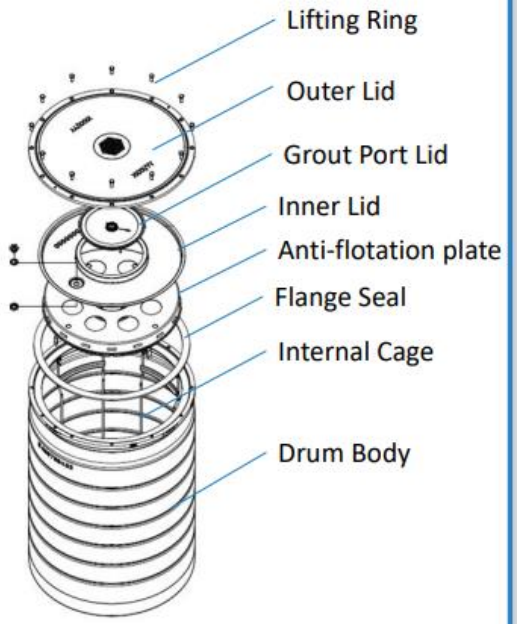
Manufacture Information:

- Material – 316L Stainless (Steel Number 1.4404) conforming to HISSC standards

WTC Drum

- A HISSC (High Integrity Stainless Steel Container) Product
- Encapsulates Compacted 200l Drums (pucks) in grout for long term storage
- Filled drums are stored within the Engineered Drum Store (EDS)

Section of a filed & grouted WTC drum

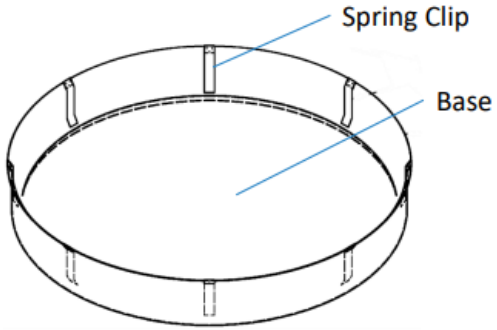


Manufacturing Information:

- Material – 316L Stainless (Steel Number 1.4404) conforming to HISSC standards - Spec.Goods.Z.0435_1

WTC Alpha Remediation Clip on Base

- Clips on to the base of a 200l drum
- Helps to prevent the 200l drum base from spreading-out during compaction operations

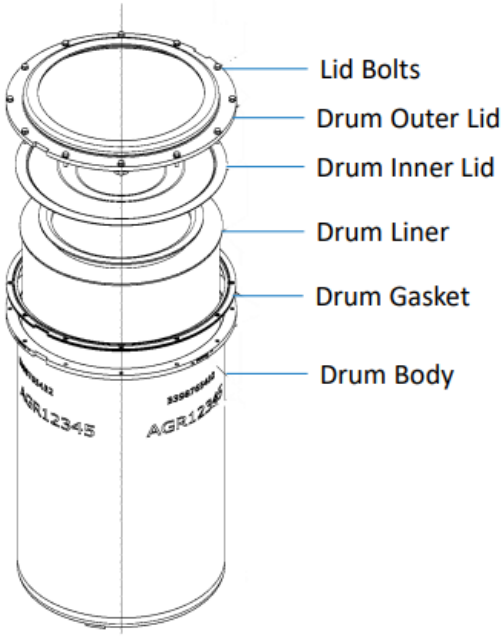


Manufacturing Information

- Material – Mild steel body & stainless steel spring clips (1.4301 BS EN 10088) - Spec.Goods.0846_1
- Sheet metal construction

AGR Drum – 500L

- A HISSC (High Integrity Stainless Steel Container) Product
- Stores intermediate level waste generated during the dismantling of Advanced Gas Reactor (AGR) spent fuel assemblies
- Drums contain either graphite waste, or stainless steel waste.

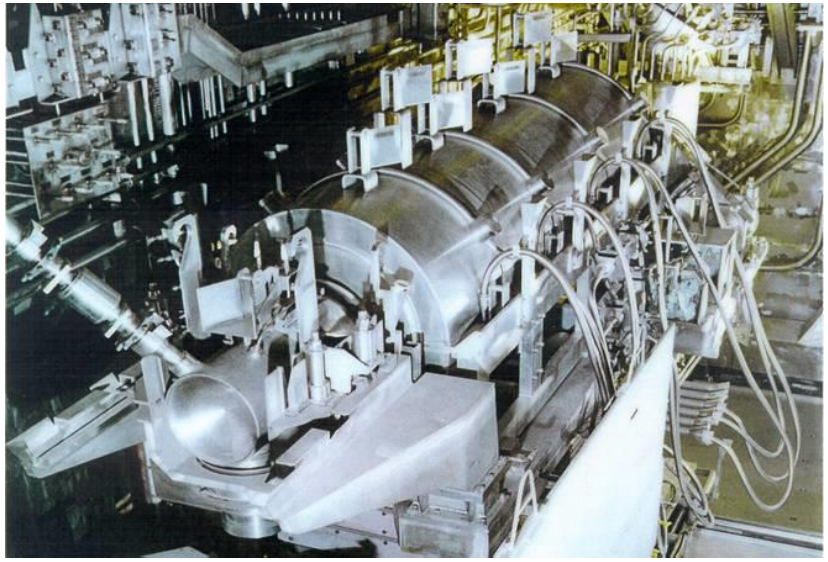


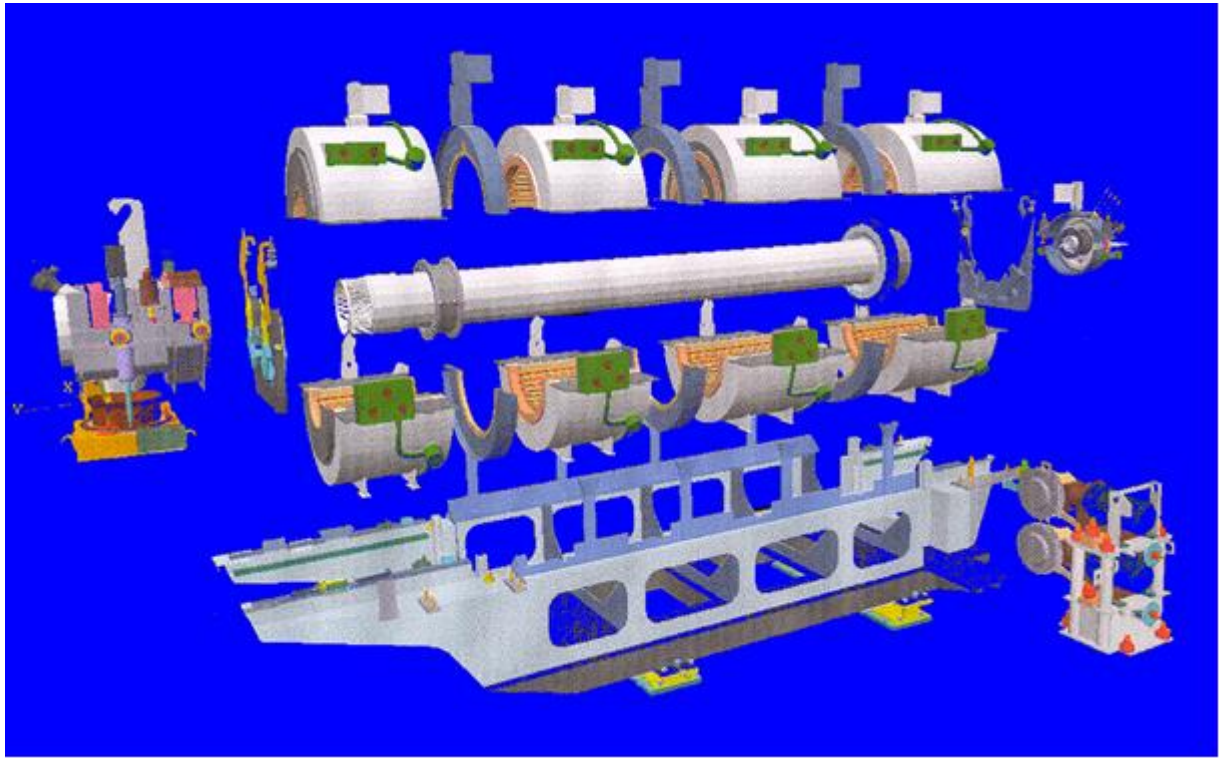
1.2m high x 0.8m diameter – 120kg empty

Manufacturing Information:

- Material – 316L Stainless (Steel Number 1.4404) conforming to HISSC standards

Calciners

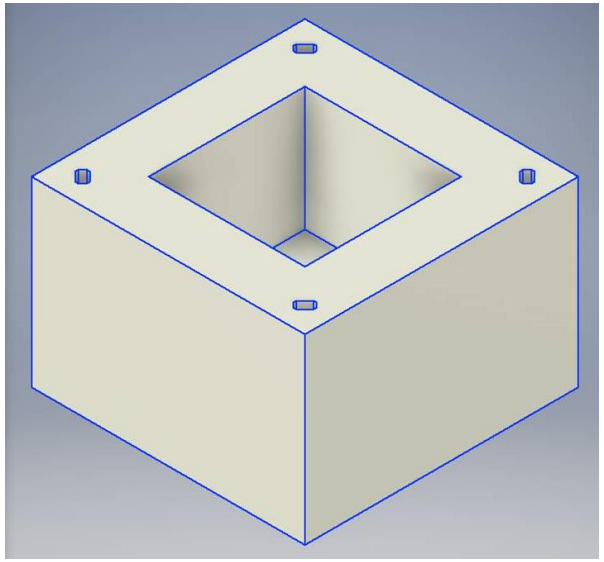




Inductors

Melters

Universal Shield Block (USB)



The Lightly Shielded Store 1 (LSS1) project is being delivered by the Programme and Project Partners (PPP) Model.
The development of the Lightly Shielded (LSS1) project has been derived from the overall Sellafield site requirement for waste storage. The overall strategic objective is to provide safe and secure interim storage for Intermediate Level Waste (ILW) packages for eventual export to a Geological Disposal Facility (GDF). This strategy includes storing waste in the most cost-effective manner prior to export and disposal.

To this end the LSS1 store will be designed with an optimised structure that removes the requirement for a fixed shielded roof. The Store will consist of an open topped vault design, with an array of stacked packages up to 5 high. The shielding in the vertical plane will be provided by the inclusion of a Universal Shield Block (USB) positioned on the top of each stack in place of shielding that would have been provided by the roof. The USB will also provide horizontal shielding by being positioned in the empty adjacent package spaces as the store array is filled or emptied. This provides an effective, accelerated and cost optimised solution for the Store.

Dimensions

Length	-	1665 + 100 (Overhang) = 1865mm
Width	-	1665 + 100 (Overhang) = 1865mm
Depth	-	1245
Concrete (Shielding) Thickness	-	500mm minimum

Concrete	Normal density, self supporting and suitable to be lifted via the Twistlock Pockets which will be encast into the top face of the USB.
Concrete Strength	Durability 100yrs and generally to BS 8500
Reinforcement	To support self-weight during lifting
Quantity	Total requirement will be 800 to 1000 off. However, this could initially be 400 with a call off on a Material Master to suit the Vault Filling Strategy and Schedule.
Standards	Recognised International Commercial Codes and Standards
Stainless Steel	The Twistlock Pockets and any required framing structure shall be stainless Steel Grade 316L as a minimum. Any other material proposals (eg Duplex) shall be in agreement with PPP

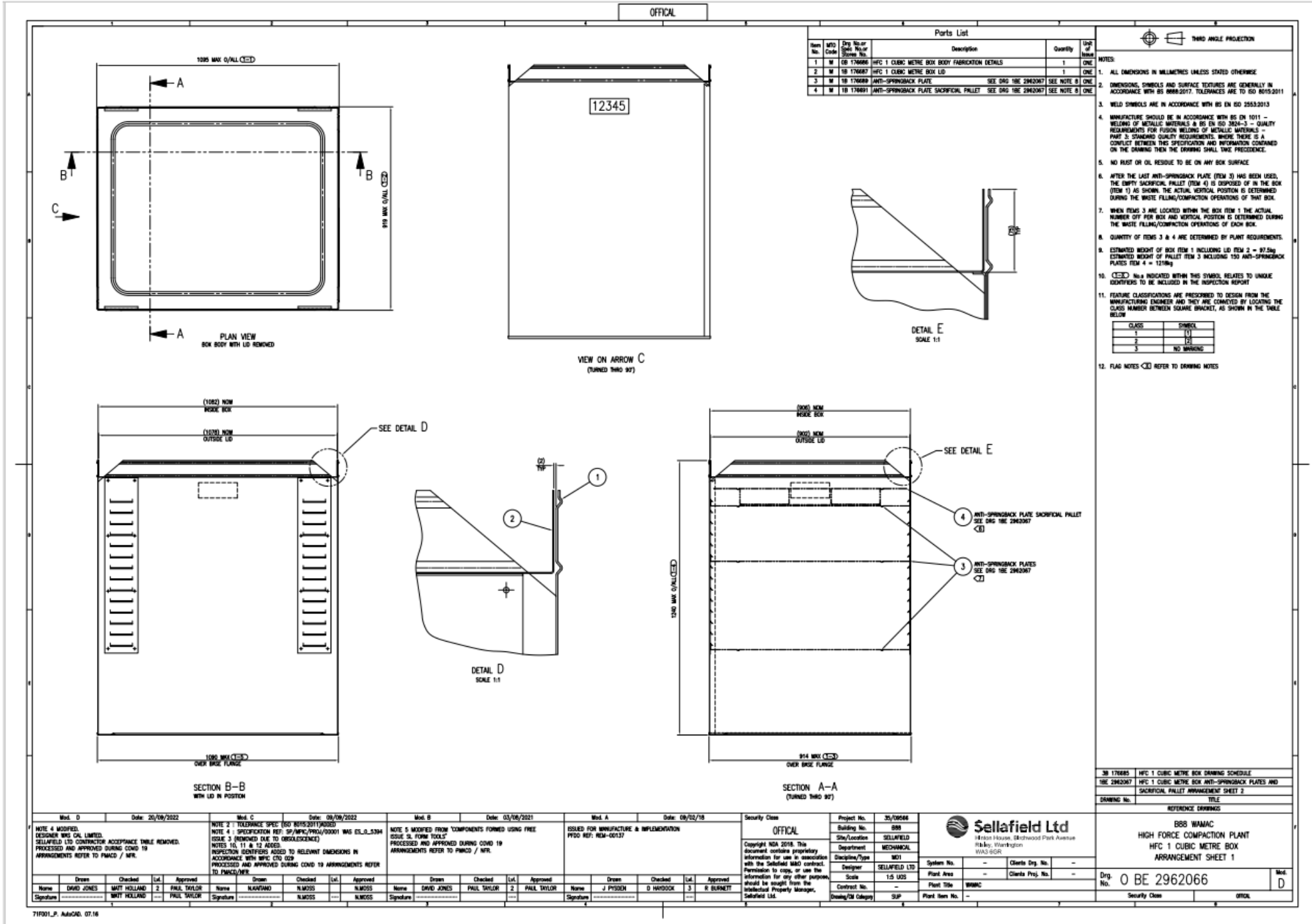
Sellafield Ltd

High Force Compaction box

Materials – Mild steel

Used for – Waste Monitoring and Compaction (WAMAC) plant for Low Level Waste (PPE, gloves etc). 1m cubed box

Anti-springback plates compress the contents Sacrificial pallet is also filled into the box if needed



Overpacks (Type 1 and 5)

- Accommodates can type products.
- Consists of a stainless steel open-topped cylinder and a stainless steel lid.
- The lid contains three additional sub-components – a stainless steel seal retainer welded to the lid, a sintered stainless steel filter welded to the lid and a viton seal held in place by the seal retainer
- The body and lid are manufactured using a deep drawing process with interlaced heat treatments and the seal retainer is manufactured using pressing process.