

PATRAM 2010 – London

An Overview of the Development of IP-2 ISO Freight Containers in the UK

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An Overview of the Development of IP-2 ISO Freight Containers in the UK

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- Changes in 1987
- Development of IP-2 ISO Freight Containers for LLW
- First Designs
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- Development of IP-2 ISO Freight Containers for ILW

Disposal of LLW up to 1987



Shipment of LLW up to 1987

- Shipment in many forms - mainly wrapped items and drums
 - ◆ Disadvantages re shipping packages
 - ★ Upcoming changes in regulations
 - ◆ Disadvantages re disposal
 - ★ Low packing efficiency
 - ★ Limited volume for trenches

Changes in 1987

- Move to improve disposal efficiency
- Desire to have engineered disposal
- Packaging of waste in drums and steel boxes proposed
- IAEA 1985 Transport to Regulations being implemented

Development of IP-2 ISO Freight Containers for LLW

- Use of largest size package recognized as most cost effective
- Regulations allowed containers tested to ISO Freight Container standards
- New regulations required containment



First Full Height Container Design



First Half Height Container Design



Design features

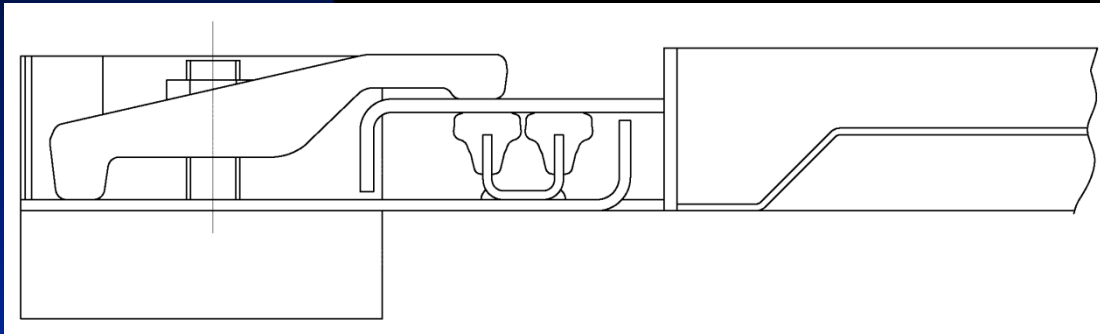
- Meets ISO freight container standards
- Body fabricated to have external verifiable seal welds
- Closure provided with verifiable seal



Problem with double door seals

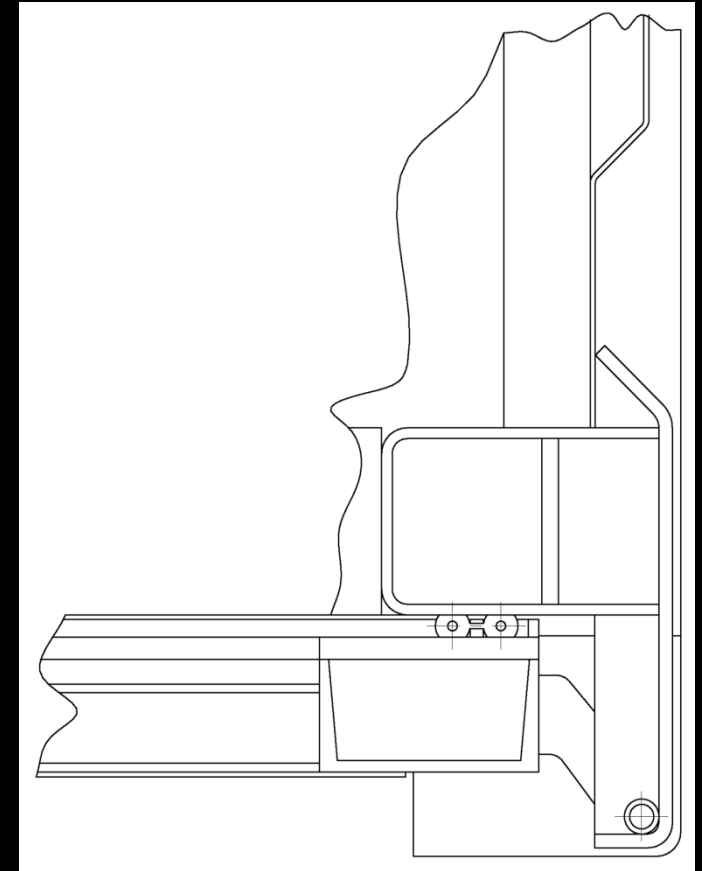


Closure verifiable seal



Section of top lid seal

Plan view of closure
and seal for end door



Door seals



Single door package



Designs developed for optimal disposal of LLW



Designs developed for optimal disposal of LLW



Handling of ISO Freight Containers



Special designs – Bolted end door



Special designs – Re-useable



Special designs – Type B Contents



ILW Container - Nirex 4m Box



ILW Container - UKAEA 2m Box



ILW 2m Cube Cast Iron Box



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Lessons learned

- Benefit of ISO Freight Container standards
- Verifiable containment can be achieved
- Design methods can be applied to a variety of packages

IP-2 ISO Freight Containers at Drigg



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Any Questions?

