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Recycling Low Activity Metals by Melting

SD:SPUR May 11th 2011

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*Leading supplier of services to the
international nuclear industry*



- 1,000+ employees
- 7 countries
- £100M sales
- Privatised 1990s
- Nuclear Licensed Sites
in US, Sweden and UK

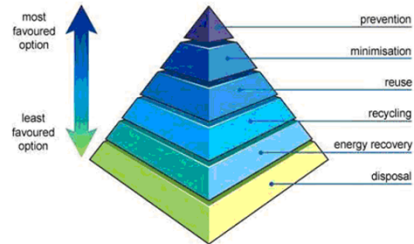


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Drivers for change

- Stakeholder pressure to deliver real clean up progress both in civil and defence sectors
- Recognition that LLWR is filling up and repositories must be viewed as a valuable national asset
- Costs need to be reduced: National Liability Estimate for lower activity wastes alone is £9bn

The Waste Management Hierarchy



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Waste Hierarchy: where are we?

- Policy
 - Solid LLW Policy, 2007
- Strategy
 - LLW Strategy, 2010
- Legislation
 - Draft Waste Regulations, 2011
- BAT is defined by practice
 - Many sites have already adopted metal recycling services



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Studsvik Metal Treatment Services

- Studsvik is a global leader in treatment of large components and scrap metal arising from nuclear decommissioning
- 20 years experience of metal melting at our facility in Sweden
 - >20,000 tonnes from 10 countries
- We were instrumental in opening overseas waste routes from the UK
 - First overseas projects from both England and Scotland under Transfrontier Shipment
 - First heavy component treated overseas
- In 2009, we opened the Studsvik MRF in Cumbria, the UK's first new nuclear licensed site in over 20 years



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Studsvik Metal Recycling Facility (MRF)

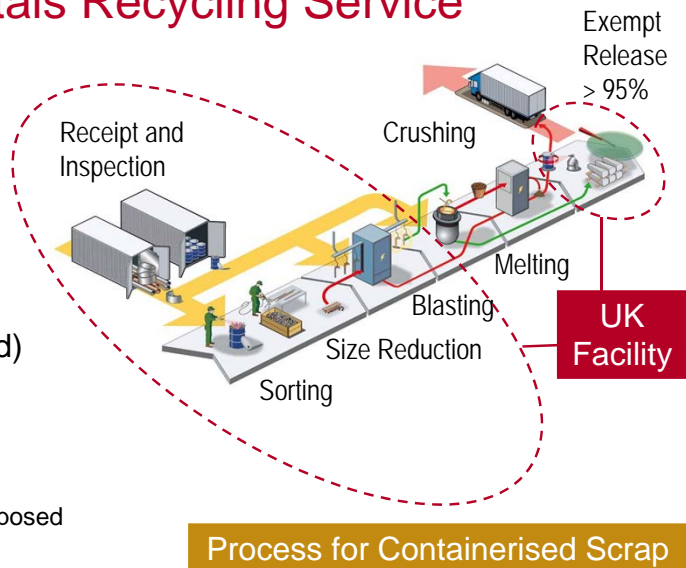
- Waste route now open, available and proven
- Successfully treated waste from 12 sites in England and Scotland
- Recycling rate is 95.9%
- No lost time accidents or regulatory incidents in 18 months operations



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Studsvik Metals Recycling Service

- Transport
- Sorting
- Size reduction
- Decontamination
- Exemption (UK)
- Melting (if required)
- Exemption (Swe)
- Recycling
 - ~95% recycled
 - ~5% residues are disposed



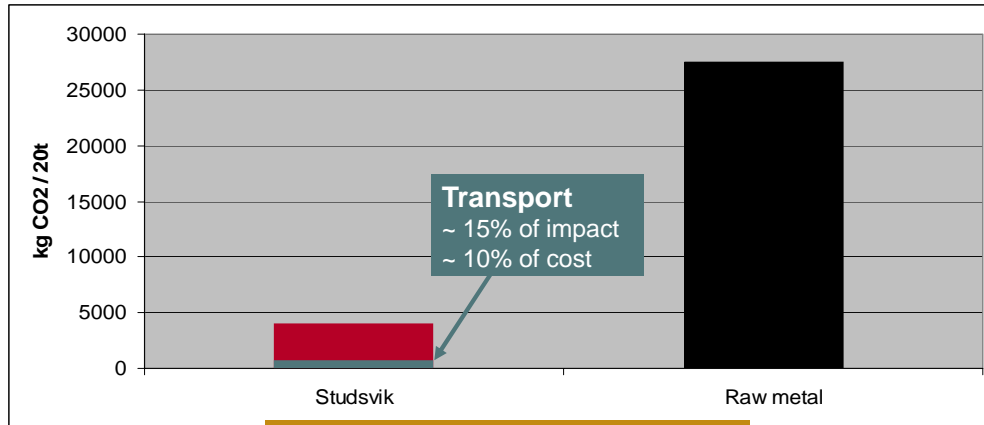
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Why treat LLW metal?

- Reduces volume of waste for disposal to minimum (~5%)
 - Wasteform is stable and homogenised
- Allows the recovery of valuable metal which can be re-used many times
- Cost effective vs LLW disposal
- Waste routing can be optimised to save money
 - Large components or smaller scrap
 - Avoids duplication of facilities at every site
- Environmental benefits
 - Established as the BPEO and BAT for LLW and VLLW

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Carbon footprinting (Ferrous)



Recycling 1 tonne of steel saves:
1.5t iron ore Water use 60% less
0.5t coal Emissions 86% less
1.3t solid waste Energy 75% less

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Comments regarding SD:SPUR metals

- All metals covered by SD:SPUR are treatable for recycling
- Bulk disposal of metal to landfill is prevented by the Landfill Regulations
 - Requirement to segregate as a minimum
- Draft Waste Regulations 2011 impose mandatory application of Waste Hierarchy
 - Creates a formal link between radioactive wastes and controlled waste regimes for the first time
- Metal recycling costs are not “grossly disproportionate” with disposal costs for VLLW

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Assurance

- Metal recycling is undertaken at Nuclear Licensed Sites
 - Paris-Brussels convention, highest regulatory scrutiny
- Exemption is undertaken to relevant national legislation
- Metal melting provides additional assurance
 - Homogenisation, improved characterisation, no hotspots
- Treated metals are used to create new metal with significantly higher quantities of feedstock from non-nuclear sources
 - Following Duty of Care and Quality Assurance protocols
- Melting emissions are 5-orders of magnitude below dose criteria
 - Significant headroom against our authorised discharge levels on a specific-activity basis

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Conclusions

- Waste management practices are changing within the industry
- BAT has been redefined as recycling for LLW and VLLW metals
- Our treatment techniques have been developed over 20 years to provide customers and stakeholders with:
 - Optimised volume reduction and % recycle
 - Assurance that operations are undertaken to world class standards at nuclear licensed facilities
 - No downstream risks above background
- Recycling is a key component of the UK strategy for managing LLW and VLLW

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