



British Nuclear Group

Intelligent nuclear clean-up

The Long Term Dry storage option

John Eldridge 18 May 2006

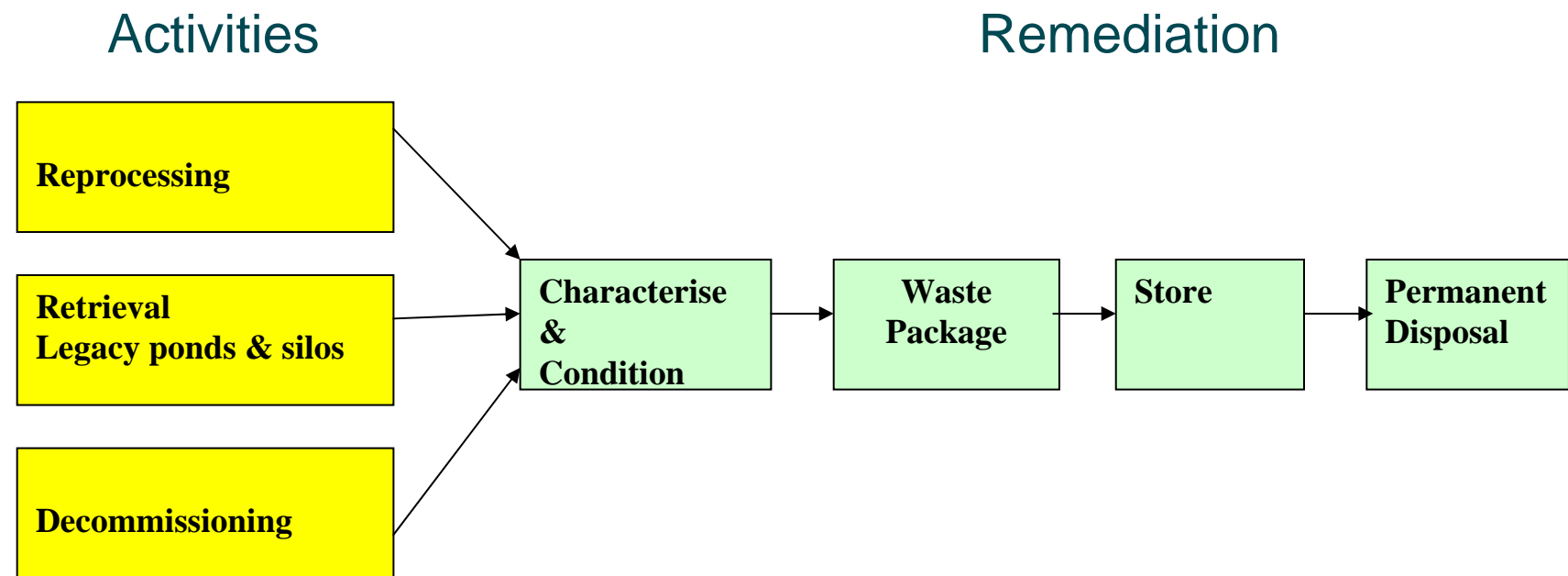
Areas to be covered

- Remediating the Sellafield site
- Focusing on Intermediate Level Waste (ILW)
- Current ILW Product stores
- Scale of issue
- Alternative surface store concepts
- Conclusions

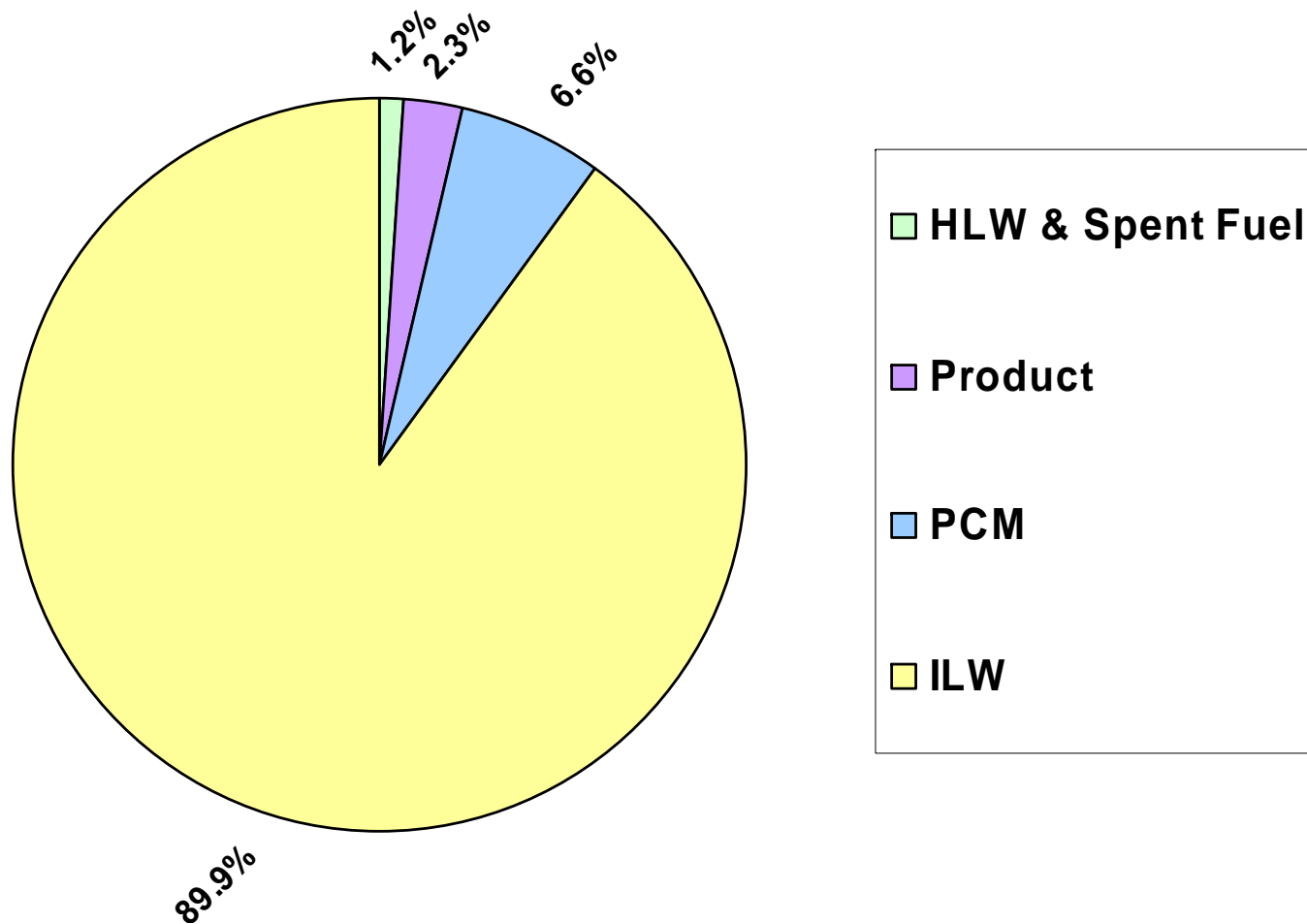
Sellafield West Cumbria



Material flow



Waste/Product by volume



Diversity of ILW

- **AQUEOUS LIQUIDS**
- **OILS & SOLVENTS**
- **ION EXCHANGE MEDIA**
- **WOOD, PAPER & CARDBOARD**
- **PLASTIC & RUBBER**
- **IRRADIATED FUEL DEBRIS**
- **GRAPHITE**
- **SLUDGES & SLURRIES**
- **STAINLESS & CARBON STEELS**
- **COPPER, LEAD & MERCURY**
- **VARIOUS ALLOYS**
- **CONCRETE AND MASONARY**
- **SAND & GRAVEL**
- **GLASS & RUBBLE**
- **SOIL & EARTH**
- **MIXTURES of 2 or more above !**

3 cubic metre ILW box



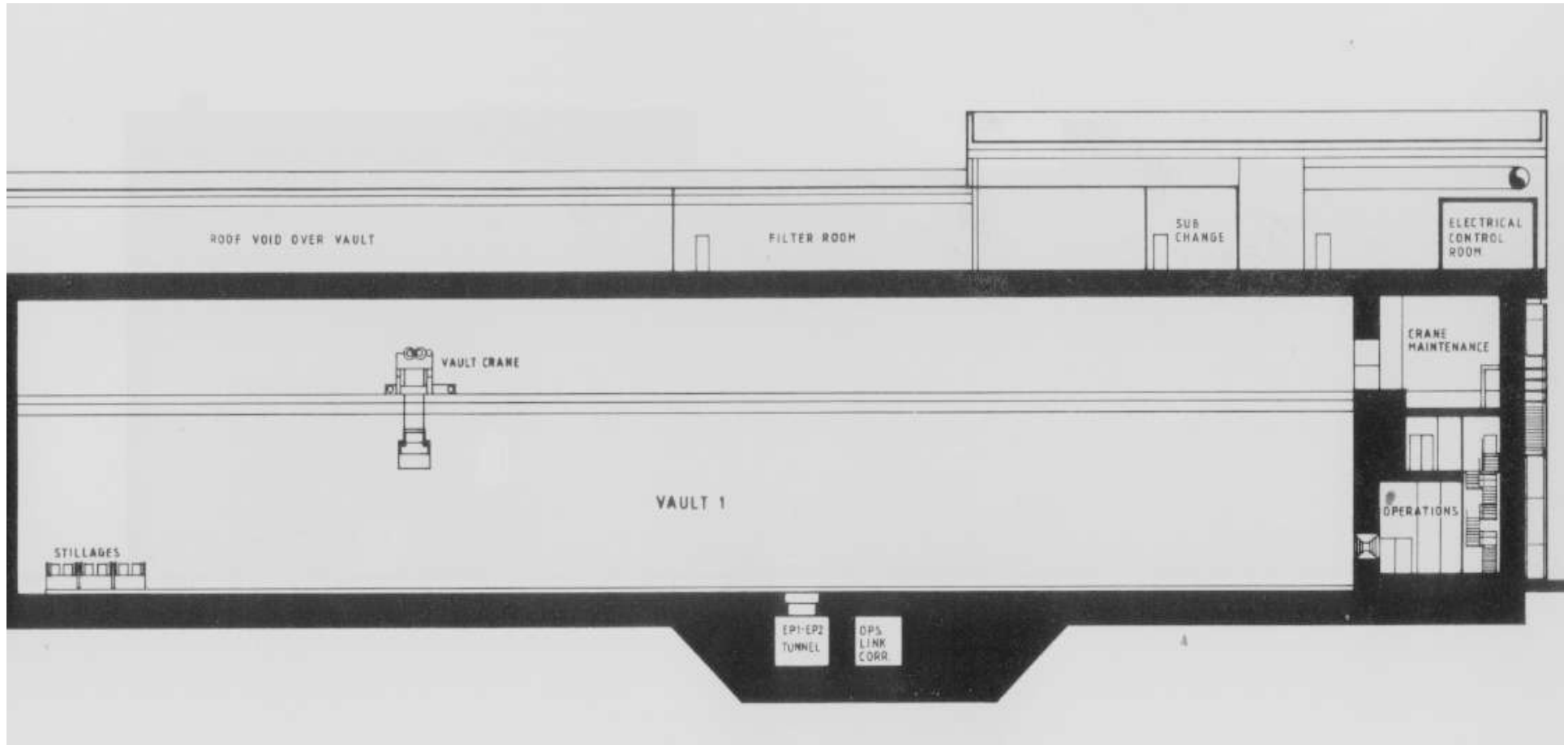
ILW Encapsulated Product Store



ILW Encapsulated Product Store vault



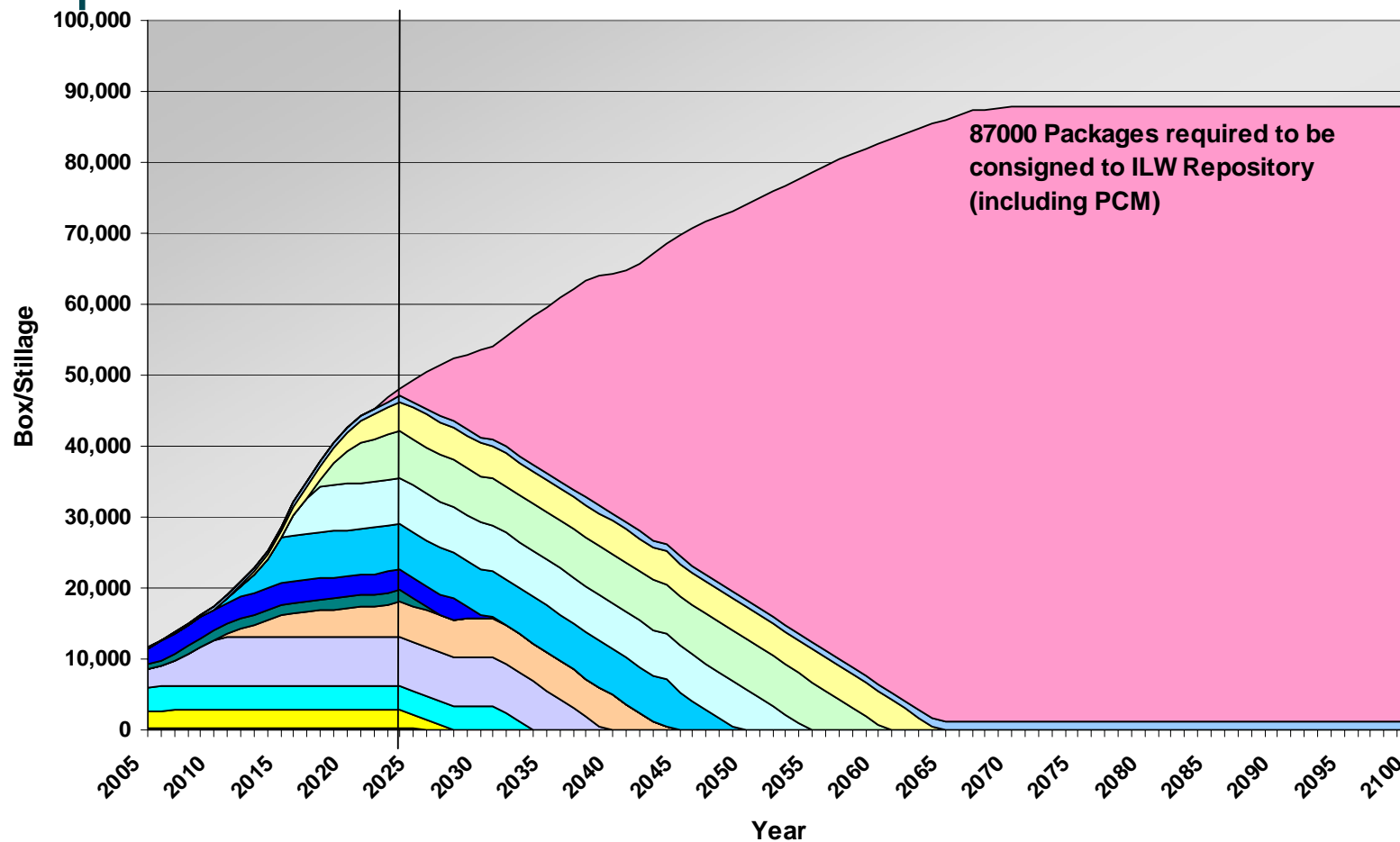
ILW Encapsulated Product Store Side Elevation



ILW Encapsulated Product Store – Design features

- Seismically qualified building
- 100m x 60M x 32M high (2 vaults)
- ILW boxes stacked 9 high x 11 x 40 (Operating capacity 6,800)
- Design life 50 years
- Potential design life 100 years
- Shorter life components
 - Carbon steel reinforced concrete structure
 - Installed mechanical handling equipment
 - Ventilation plant
 - Waste package material

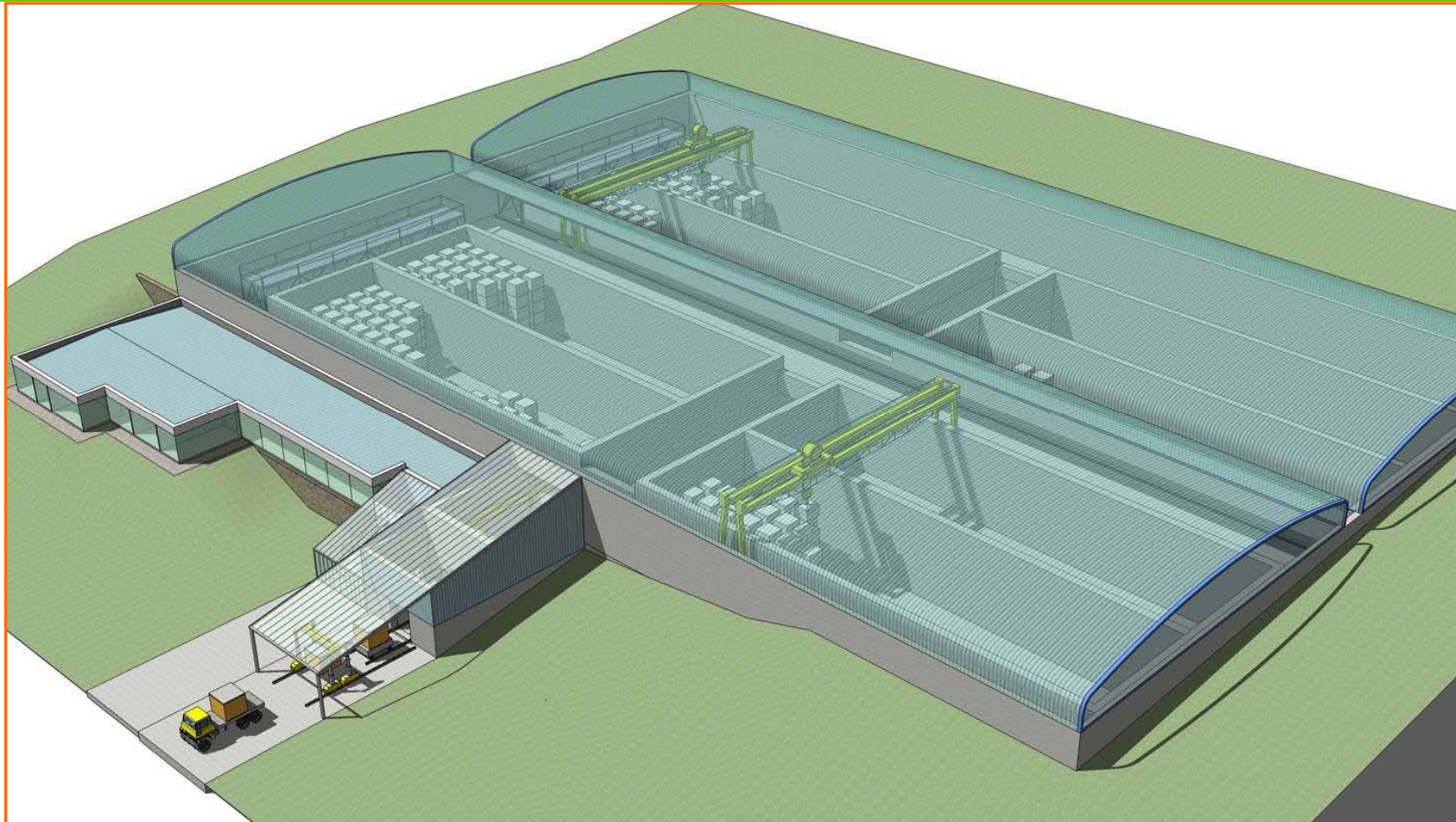
Sellfield ILW waste packages to store and disposal



Storage in 2025



Alternative ILW storage concept short term



Alternative ILW storage concept very long term



Conclusions

- History of constructing & operating large, robust & long lived ILW stores
- Waste characterisation is key to producing a Waste product for storage and ultimate disposal of ILW.
- The production of a Waste product is more demanding for long term surface storage, (and or phased repository), than for early permanent disposal in a repository.
 - Passive waste form
 - Container durability
- Remediating Sellafield will require a new store every 6-7 years
- After approximately 2070 replacement stores will be required
- Concepts exist for stores with reduced lifetime costs and/or very long

Questions or clarification

Thank you for your attention



British Nuclear Group is a business group of British Nuclear Fuels plc

For more information please contact:

John Eldridge, Hinton House, Risley, Warrington WA3 6AS

Tel: +44 (0) 1925 835381 Fax: +44 (0) 1925 822711

e-mail: john.eldridge@britishnucleargroup.com