

Magnox LLW Management Update to NuLeAF

Third Annual Meeting with Waste Planning Authorities, NuLeAF
and Nuclear Industry Waste Producers

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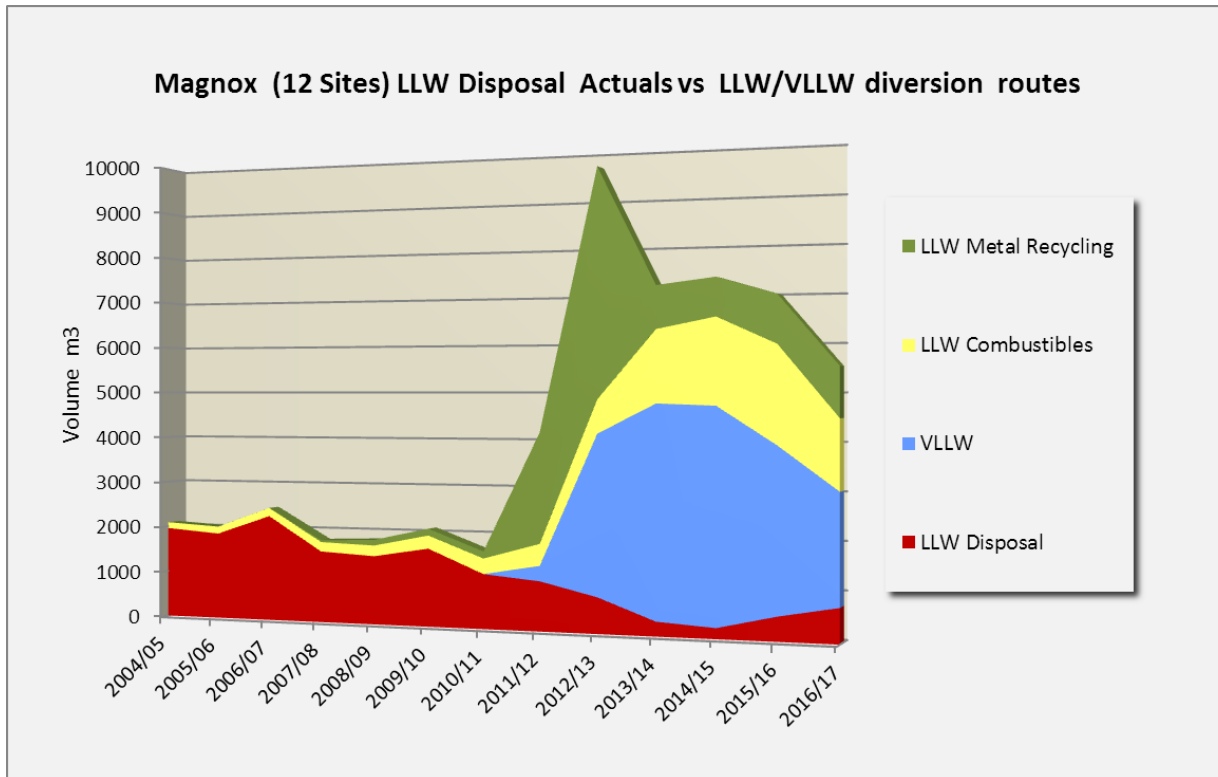
24th January 2017, London

Waste Programme



Magnox

Magnox LLW Management, 2004 - 2017



Over the past six years there has been almost a six-fold decrease in the volume of waste consigned to the repository despite a two to three-fold increase in total waste arisings due to an accelerated decommissioning programme.

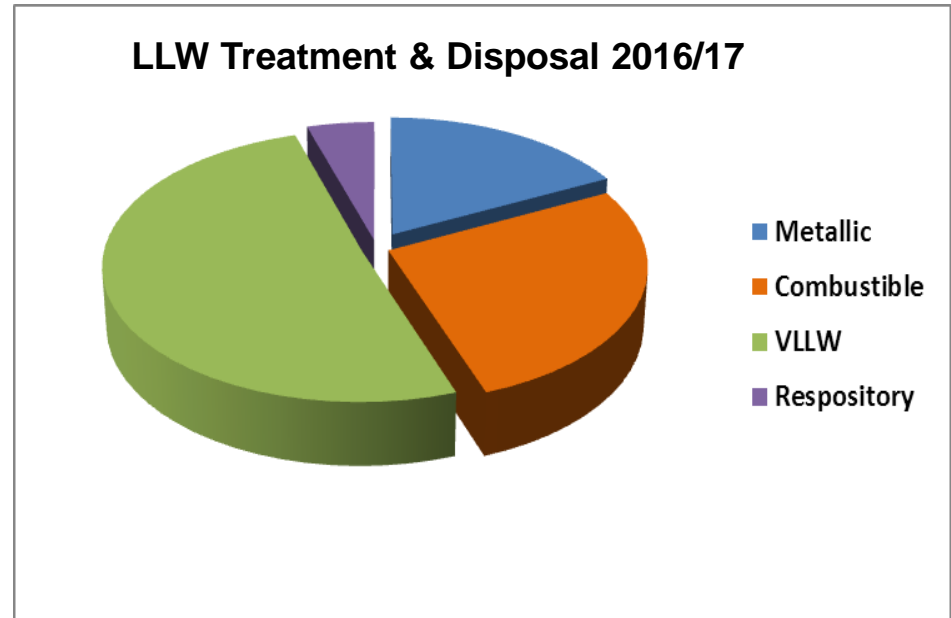
Waste Programme

Summary of Delivery, 2016/17

- **(M)** ~1,040 te Metal
- **(C)** ~1,600 m³ Combustible
- **(V)** ~3,000 m³ VLLW
- **(S)(L)** ~280 m³ Repository







Magnox metals decontamination facility at Winfrith



Waste Programme

2017/18 Waste Forecast

-  Divert 1,323te metallic LLW (~330te via supply chain)
-  Divert 1,096 m³ combustible LLW (all supply chain)
-  Divert 9,177 m³ VLLW (~8,000 m³ via supply chain)
Open VLLW route at Wylfa
-  Consign 30 containers to the LLW Repository (includes supercompaction waste, Bradwell LLW FED plus 570m³ of Winfrith encapsulated waste in TRS drums due to move by rail in 2017-18).

Note: The above forecast data is from JWMP11; please note that numbers are subject to change when JWMP12 is issued in March 17.

Problematic Waste Example - FED to LLWR

- Fuel Element Debris (FED) = the outer components of fuel element cladding produced by the de-splitting or de-lugging process
- Magnesium alloy ('Magnox') = reactive metal
- Previously classed as ILW in Radioactive Waste Inventory
- High Dose Rate Items (springs, thermocouples and fuel fragments) may be present
- Bradwell FED now retrieved, sorted (segregated) and ~100te characterised as LLW
- All FED at Oldbury and Sizewell expected to be LLW when retrieved



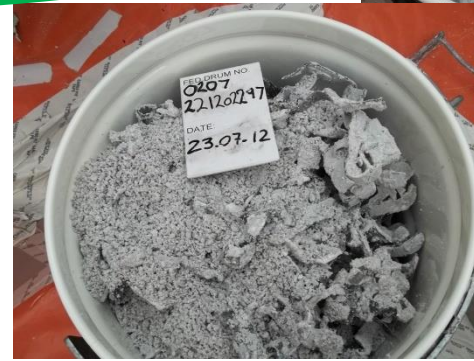
Waste Programme

FED Retrieval (Photographs from Bradwell)

Vault Top



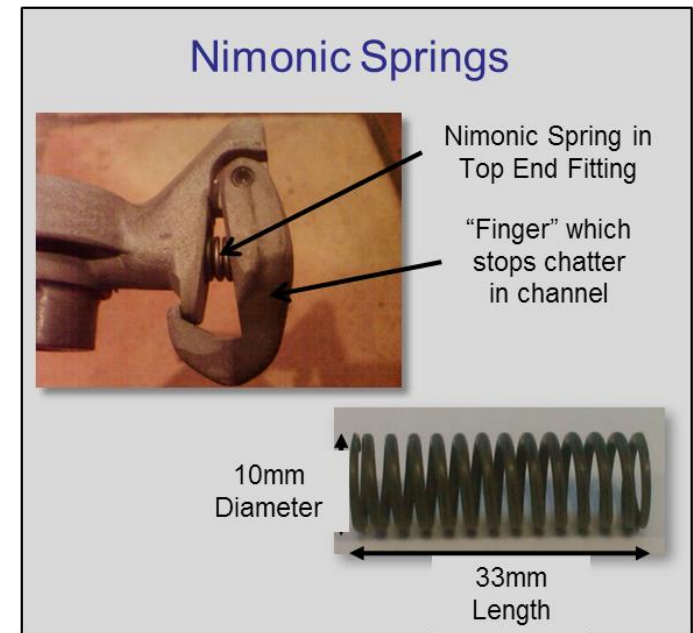
Vault Bottom



Waste Programme

Key Areas of Consideration

- FED not classed as LLW in RWI when LLW repository ESC and capacity model developed
 - ‘new waste’ for LLWR
- Material composition
 - corrosion rate & uranium hydride
- Discrete Items – nimonic springs
- Active Particles – fuel fragments
- Radiological capacity
- Hydrogen evolution on grouting



LLW FED to LLWR – Current Status

- Disposal to LLWR is BAT
- LLWR approvals received for initial tranche of FED (Phase 1)
- Agreed approach is supercompacted FED drums, co-disposed with other LLW (for hydrogen management)
- HDRI segregation and drum assaying demonstrate compliance
- First Of A Kind container loaded for consignment to LLWR in February 17
- LLWR approvals being sought for remaining Bradwell LLW FED
- Oldbury and Sizewell LLW FED projects to follow

Waste Programme

FED to LLWR – FOAK Consignment



Waste Programme