

Sellafield

Chief Technology Officer

Dr Robin Ibbotson

Over 70 Years of History



1940s/50s

1960s/70s

1980s

1990s

2000s/10s

2020/50

2050/2100

Pile reactor
First
Generation
Reprocessing
&
Calder Hall
Online

Magnox
Reprocessing
Windscale
Advanced
Gas-cooled
Reactor
online

Thorp
reprocessing
plant
build
begins

Thorp
Online:
Commercial
Reprocessing

Calder Hall Ceases
Decommissioning
accelerates

Dealing with
legacy:
Pile Fuel
&
Magnox Fuel
infrastructure

Large scale
decommissioning
Environmental
Remediation



Our people

11,000+

We have 11,033 employees (full-time equivalents)

40 YEARS

We have had our current dedicated training centre at Sellafield for nearly 40 years

10,500+

We have trained more than 10,500 apprentices over the last 67 years

~42,800

We have approximately 42,800 supply chain people supporting us

Budget

£2bn+

We manage an annual budget of more than **£2bn** every year

Projects

£7.5bn

We have a **£7.5bn** capital programme over the next 20 years

£50m

~25 projects over **£50m**

Waste

~1,500m³

~1,500m³ of **high level waste** to be disposed to the GDF/ exported (packaged volume)

~350,000m³

~350,000m³ of **intermediate level waste** to be disposed to the GDF (packaged volume)

~450,000m³

~450,000m³ of raw future arisings of **low level waste**

~2,750,000m³

~2,750,000m³ of raw future arisings of **very low level waste**

General

2 square miles

Size of the Sellafield site: **2 square miles**

1,300

Number of buildings on site: **1,300**

200+

200+ of the buildings are **nuclear facilities** and Sellafield is home to **4 of the biggest nuclear risks and hazards** in Europe

Locations

Sellafield and Warrington are our two main locations

70+ years

the site has been operating for **70+ years** and has **100+ years of work** ahead of it

Environmental

111km

111 km of drainage pipework on site – same as the distance from **Whitehaven to Kendal**

22

22 separate monitoring units around our site perimeter that continuously sample aerial readings.

Infrastructure

70+

More than **70 substations** on site

100km

100km of pipework for water supplies, on/off site

120km

120km of high voltage cable

19km

19km of steam mains

40km

40km of road and tracks on site

1,750m³

1,750m³ of sewage effluent processed every day

1,000

1,000 shipments in/out of site each year

2,500m³

2,500m³ domestic water supplied per day

Supply Chain

£1.26bn

We spend approx. **£1.26bn** each year, **64%** of our total budget in our supply chain

~£300m

We spend **£300m** each year with small and medium enterprises (SMEs)

£15.25bn

Value of our **Contract Portfolio: £15.25bn**

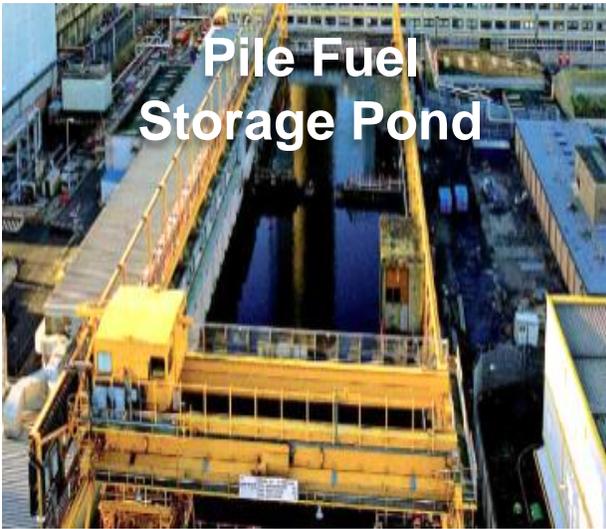
£350m

We spend more than **£350 million** every year on major projects, constructing the buildings that we need in order to empty and demolish old facilities

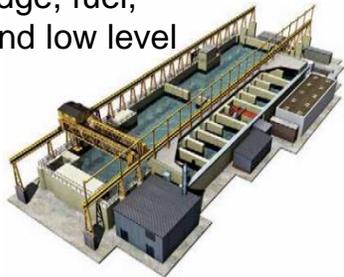
953

Current vendors: **953**

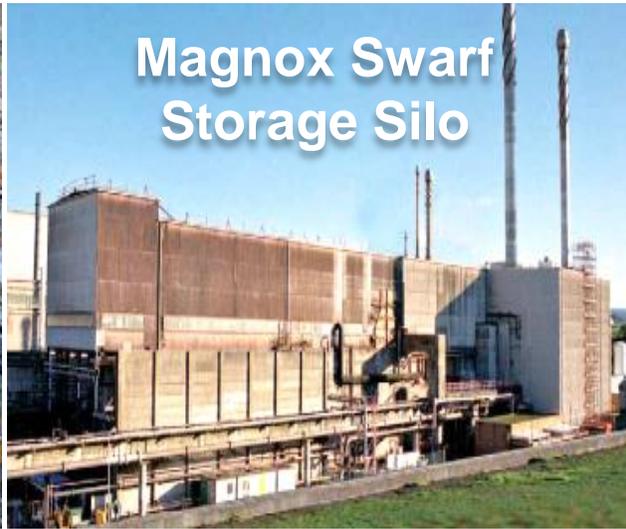
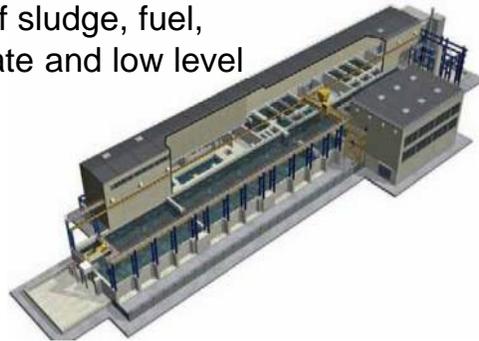
Legacy storage Ponds and Silos



Constructed 1948-1952 to store Windscale fuel for reprocessing. Waste consists of sludge, fuel, intermediate and low level waste.



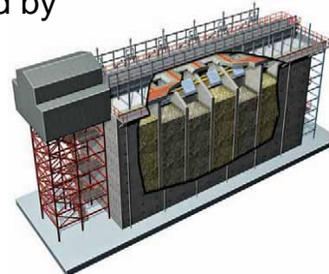
Constructed in 1950s and 1960s to store Magnox fuel for reprocessing. Waste consists of sludge, fuel, intermediate and low level waste.



Constructed 1960s-1980s to hold irradiated fuel canning waste. Received waste until 2000.



Commissioned in 1952, 1st storage facility for intermediate level waste constructed at Sellafield. The silo was filled by 1964.

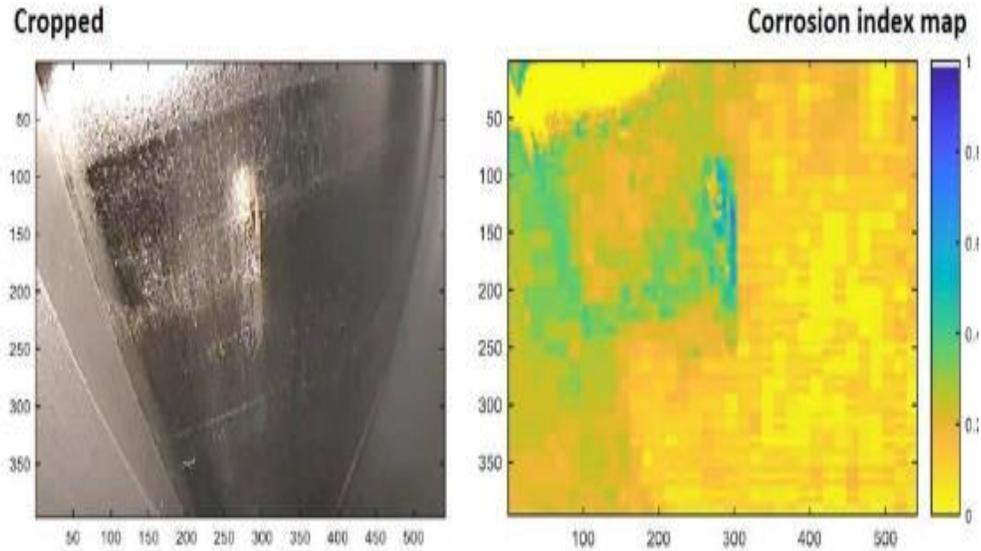


Collaboration with Strathclyde on SNM packages

Advanced Image Analysis

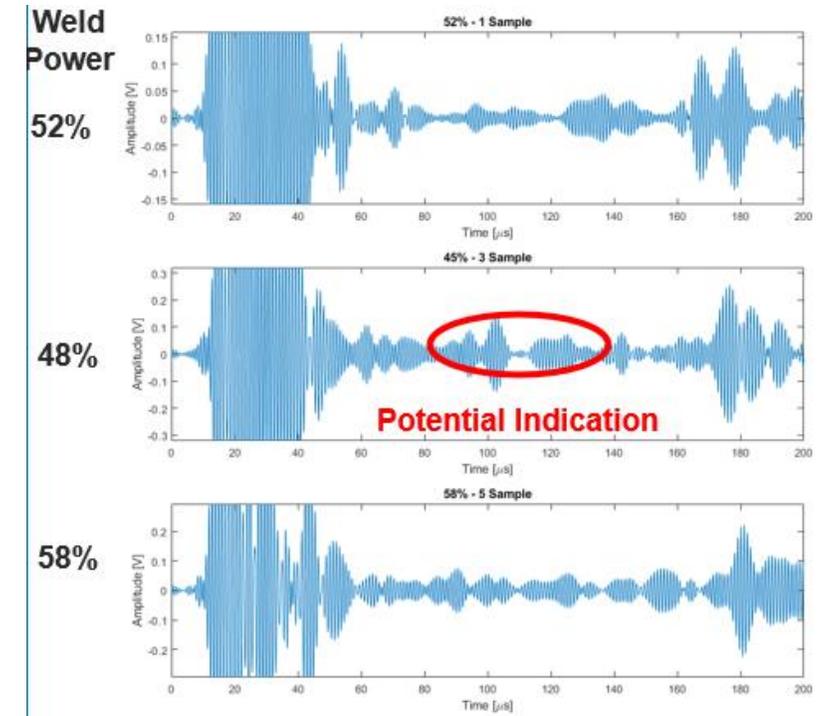
Corrosion identification to aid inspections

Now being delivered by NNL onto the Sellafield Site for analysing existing SNM can populations



Advanced Ultrasonics

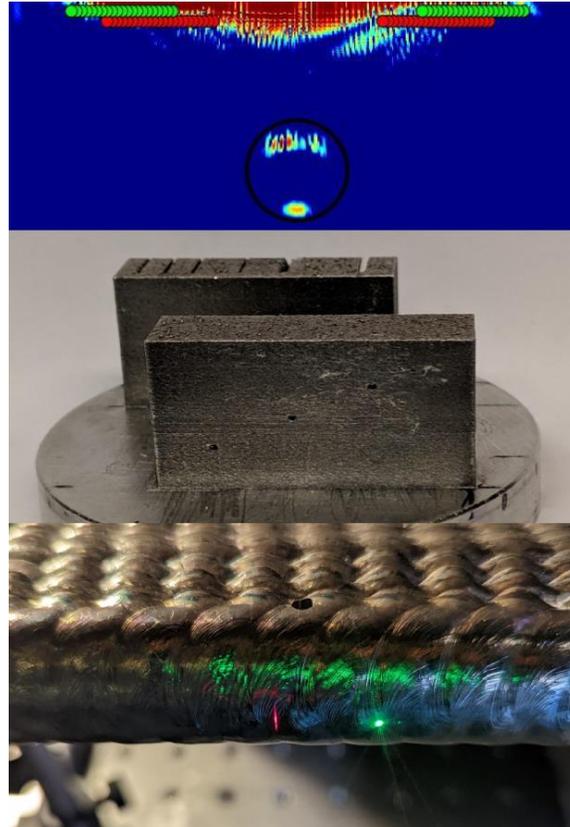
Guided waves for inspection of cylindrical SNM packages



Collaboration with Strathclyde on AGR Fuel Pins

Laser Ultrasound

Using a laser to induce an acoustic (ultrasound) signal in a metal that can be used to assess integrity of a component – such as AGR fuel pin cladding.



Centre for Process Analytics and Control Technology



Sellafield Ltd are members of CPACT.

CPACT provides our engineers and researchers with access to webinars, free feasibility studies and access to other member universities and companies to share knowledge and collaborate.

**We support
PhD research**



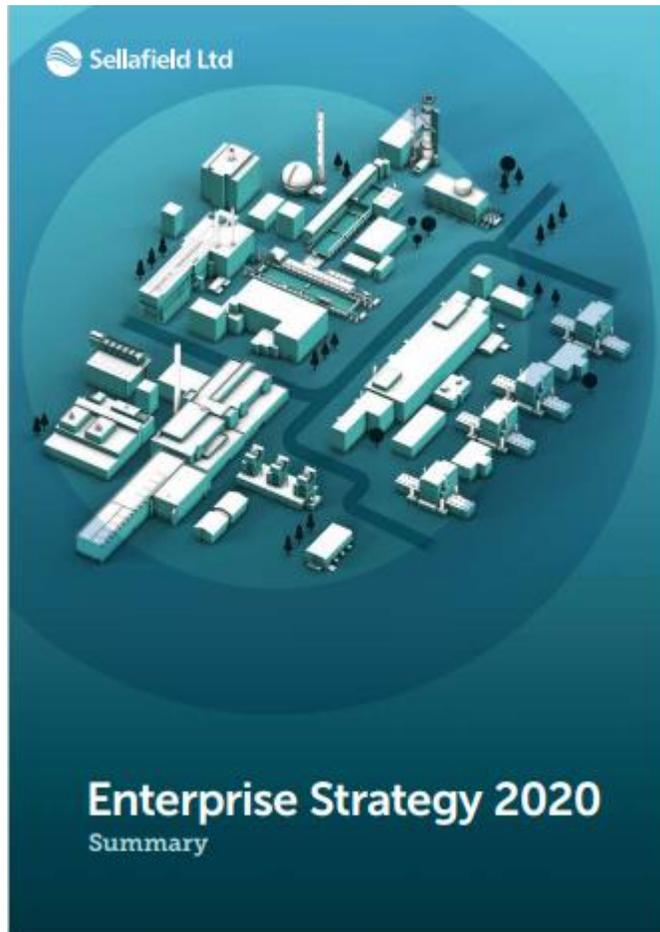
**We invest
in people**



Future Opportunity

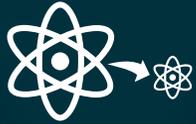


Future Opportunity



Solutions that meet our cost drivers in our strategy

Waste Volume



Reducing the volume of waste created reduces storage capacity demand and storage costs

Waste Category



Assuredly sorting and segregating waste types minimises the costs associated with higher level wastes

Hotel Costs



Old facilities and radiological elements within a facility have maintenance costs when they are unused

End State



The final state of the site determines the level of decommissioning that we need to undertake