Welcome to this special edition of Magnitude, which you will see is something of a reflection on the journey we have travelled together since 2005. Back then, our challenge was to progressively turn a successful operating company into an equally successful decommissioning one. We had nuclear fuel on six sites, generation was due to end in 2010 and legacy waste still had to be tackled.

But how the landscape has been transformed since that time. Extended generation at Wylfa and Oldbury has produced an additional £1 billion of income for our customer, the Nuclear Decommissioning Authority, and soon we will have only two sites left with fuel.

Through the Magnox Optimised Decommissioning Programme and our programme approach we have emptied ponds, demolished turbine halls, blown down cooling towers, got to grips with fuel element debris, removed huge amounts of asbestos and have gone further than many thought possible in dealing with the intermediate level waste legacy.

We have significantly reduced hazard and removed 34 site years from the programme, saving the taxpayer £1.8 billion.

We’ve had strong leadership across the company, no small measure of innovation, a determination to succeed and, most importantly, we’ve looked after each other. On this note I take leave of the company and wish to thank the team for their professionalism and enthusiasm.

Neil Baldwin
Managing Director
Chapelcross cooling towers demolition

The demolition of the landmark Chapelcross cooling towers cost £3 million and took three years of meticulous planning and extensive stakeholder consultation and it was all over in twelve seconds.

"Thousands more around the world watched the demolition live on the web. Robbie Coltrane, aka Hagrid in the Harry Potter films, was a guest from the site at Creca filming a documentary on the cooling towers as the finale to his three part series, B-road Britain.

"I remember at the time saying to the local and national media that it was the end of an era and it was sad to see them go."

Oldbury reactor returns

Oldbury reactor two returned to service after a two-year outage. The reactor had been shut down in June 2005 for its normal biennial outage but did not return to service until May 2007.

CO₂ tanks leave Dungeness

Four redundant CO₂ tanks left Dungeness for a life on the ocean waves. On board the ship they now store acid used in the North Sea oil field.

First fuel element removed at Chapelcross

The first of 38.075 fuel elements at Chapelcross was safely removed from reactor one on 18 August. To allow this to happen, a £30 million project was required to design, manufacture, install and commission a new defueling route at the site.

ILW stream complete

One of the first intermediate level waste (ILW) streams to be fully recovered and packaged at any nuclear site in the UK was achieved two months ahead of schedule at Trawsfynydd site. The stream was made up of activated components which were removed from the reactor core during the operational life of the station.

Magnox lifts RoSPA Engineering Construction Sector Award

Magnox was awarded a RoSPA Engineering Construction Sector Award for its ILW stream complete project at Trawsfynydd. Magnox was the only company to receive any engineering award in the RoSPA Health and Safety Awards, which were presented at a ceremony held at the London Hilton Hotel.

Magnox launches i4 Innovation: Inspire, Imagine, Innovate, Implement

i4 Innovation is the first subsea decommissioning project to work with a real-time, web-based system to drive the delivery of the project. It will be used to demonstrate how digital technology can improve the speed and efficiency of decommissioning.
Berkeley safestores

December 2010 marked the end of the two-year Berkeley ‘safestore’ project that was delivered by a team led by Paul Oswald.

“In short, Berkeley sealed up its two reactors, placing them into a passive state known as ‘safestore’ only periodically entered for monitoring and maintenance, until final site clearance.”

Paul recalls how the project grew in significance becoming a hugely influential piece of work. Berkeley’s ‘safestore’ project earned itself a triple first – a first for Magnox, a first for the Nuclear Decommissioning Authority and a first for the UK nuclear industry.

“The safestores brought about a shift in perception. After the doors had been sealed, people accepted that they were no longer able to go into the buildings and it would be two years later before the safestores would be reopened for a routine check.”

Paul was responsible for driving forward one of the most significant projects in UK nuclear history and looks back with a huge sense of pride on his role in the achievement.

Dungeness goes yellow with first waste package

Dungeness became the first site in the UK to fill a ductile cast iron container with intermediate level waste (ILW). Mike Gull, then ILW Programme Director, looks back.

“Faced with a funding challenge and a desire to push on with hazard reduction, we were looking for a more flexible and cost effective solution to manage ILW. The concept sounded simple. The container provides package integrity rather than the store, enabling a buy as you go approach where boxes could be purchased and filled before a building was constructed.

“Making that a reality was a huge challenge and probably remains the single biggest technology change we’ve made to the decommissioning programme.

“An early demonstration that the boxes would work was essential. Dungeness was the ideal site because of an operational need to store resin and this allowed us to prove the capability of the box in a safe and reversible way. Those three boxes are still safely in place today.

“There are still challenges ahead, but we have two interim storage facilities holding conditioned ILW and I am very proud of that progress. Many people have played a part but we shouldn’t forget the role of the supply chain, in particular GNS who supply yellow boxes, the regulators and Radioactive Waste Management Ltd who assessed our proposals and of course the Magnox team that has fundamentally changed the landscape of ILW management in the UK.”

Trawsfynydd ILW store opens

The intermediate level waste store at Trawsfynydd was the first in the UK to become operational, receiving the first of around 3,000 packages for storage on 9 September.

More than 10,000 drums of Magnox depleted uranium (MDU), carefully over packed in stainless steel containers, were shipped to Capenhurst from Chapelcross.

“Both Oldbury and Wylfa have extended their generating lives. This involved a huge amount of work by the sites and the support team to demonstrate the safety of future operations.

“Oldbury finally shut in 2012 and Wylfa reactor one is still (2014) operating past 2010. By making best use of the remaining nuclear fuel, Magnox has generated at least an additional £1billion - a significant contribution to the costs of decommissioning.”

By Joe Lamonby, COO, Fuelled Sites.

Powering on

By Mike Gull, Bradwell Site Director

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**2011** 

- **JUNE** | Bradwell demolishes turbine hall with EDF Energy spill
- **FEBRUARY** | Chapelcross drains and seals
- **MAY** | Neil Baldwin becomes chair of National Skills Academy for Nuclear
- **AUGUST** | Phase one of Europe’s largest asbestos removal project complete at Chapelcross

**MARCH 2011**

**Magnox response to the accident at Fukushima Dai-ichi**

On 11 March 2011, Japan suffered its worst recorded earthquake. The following tsunami caused a serious nuclear accident at the Fukushima Dai-ichi nuclear power site.

Magnox has addressed the recommendations made by HM Chief Inspector of Nuclear Installations, which mitigate the impact of extreme events that are outside the sites’ safety cases.

**JUNE 2011**

**Walking on water**

In June 2011, pioneering work began at Hunterston to channel water to the sites’ safety cases.

**2011**

- **MAY** | Launch of Magnox Limited
- **JUNE** | Oldbury reactor two ends generation
- **NOVEMBER** | Magnox Plant and Structures Programme awards £234 million framework contract
- **DECEMBER** | The Aberconwy Enterprise Zone Trawsfynydd is launched

**2012**

- **APRIL** | Launch of Magnox RSSL competition process Magnox socio-economic scheme launched
- **AUGUST** | Wyth begins inter-reactor transfer of fuel
- **SEPTEMBER** | Magnox wins Constructing Excellence East of England award

**MARCH 2012**

**Magnox Optimised Decommissioning Programme**

By John Vlietstra, Chief Operating Officer

In 2009, Magnox was asked to undertake a programme review called Safe and Secure Sites by the Nuclear Decommissioning Authority (NDA).

“My team and I were asked to understand what would be required to get the sites into a condition where they could be left so funding could be channelled towards higher hazard reduction across the NDA estate.

“The result in 2011 was a whole new work programme that, far from stopping work, accelerated clean up and hazard reduction significantly, at a reduced cost and provided opportunities for staff and the supply chain.

“We called the approach Taking Magnox Forward and looked at every area of delivery and innovation. From extending generation at Oldbury and Wyth to optimising defuelling arrangements and organising decommissioning into a series of consistent work programmes - we built a collective plan for the Magnox estate.

“The resulting Magnox Optimised Decommissioning Programme was implemented, requiring hundreds of change control procedures. It saved £1.3 billion, a figure which later increased, from the existing plan and removed 34 site years from the time expected to get the sites into care and maintenance.

“It was a massive team effort that touched almost everyone in the business and it marked a real turning point as we set about transitioning Magnox into a world class decommissioning organisation.”

**JUNE 2012**

**Demolition of seven buildings**

Dungeness completed its first phase of demolition work, taking down seven buildings, including the old administration block, its adjoining annex and disused canteen.

**FEBRUARY 2012**

**Oldbury ends generation**

After 44 years of safe operation, Oldbury power station – then the world’s oldest operating nuclear power station - ceased generation at 11am on 24 February 2012.

Andy Freeman and Simon Priday, who were part of the ‘C’ shift responsible for shutting down the reactor, reflect on what happened.

“I remember having to pretend to do the shut down several times so the cameras could record it, and I was interviewed too – there was a lot of focus on the ‘reactor trip button’ but there was much more to it than that.

“Some people had been on site their entire working lives so it was quite an emotional day for them.

“We had a lot to do after the shut down happened,” said Andy. “There are alarms to address, cooling to be established, safety rods to withdraw and logs to complete before handing over to the oncoming shift.

“Afterwards we went to the pub and then went home to watch ourselves on TV.

“The control room is very different now, we’ve had to get to know different systems and procedures, and the nature of the job has changed to deliver safe defuelling.”

**Creation of the Hub**

The Hub was created in 2012 as a small, central team to manage sites when they enter the care and maintenance stage of their lifecycle.
Magnox gets Engineering Construction Industry Training Board award

Community impact report funded to support care and maintenance preparations at Bradwell

Magnox led a review of the strategies for interim storage of intermediate level waste and the treatment of fuel element debris at its sites in England on behalf of the Nuclear Decommissioning Authority (NDA).

More than 2,100 tonnes of asbestos waste has been removed from Hinkley since it ceased generating electricity, and in 2013 the last bulk removal operations were completed and sent off site for disposal. The turbine hall alone had over 389 tonnes of asbestos removed, filling over 80 skips.

Chapelcross achieved a major milestone when the last flask of spent fuel left the site for reprocessing at Sellafield.

Magnox signs staff transfer protocols

A number of agreements have been established between Magnox and various external organisations to provide staff with career opportunities outside of the company as it reduces numbers of employees.

Bulking down

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Talking waste

Several agreements have been established between Magnox and various external organisations to provide staff with career opportunities outside of the company as it reduces numbers of employees.

First ISF

The first interim storage facility (ISF) is built at Bradwell in 2013. It can store up to 170 ductile cast iron containers and has taken receipt of a package containing conditioned intermediate level waste.

Marsh Million

Magnox provides £500,000 of socio-economic support to the Marsh Mill fund to encourage business growth on the Romney Marsh.
**January**

Magnox signs £200 million framework contract for self-shielded waste containers

Magnox graduates first to complete certificate of nuclear professionalism

**March**

NDA announces preferred bidder in Magnox RSRL competition

**April**

Wylfa’s final outage

“Getting to grips with legacy ILW has been a key part of the Magnox Optimised Decommissioning Programme. This year I can say we are now making exceptional progress and meeting Neil’s challenge of breaking the back of ILW. “Our achievements should not be underestimated; we are now retrieving, packaging, conditioning and storing waste across five sites, with Chapelcross and Dungeness about to start.

“I am immensely proud of the various teams across the patch and it was great to be recognised at the i4 awards, where work on the ILW programme won three of the five categories. This is a testament to the innovative work being done around the sites.

“Having ILW packed and stored at four sites was a great way to finish off last year and as we move into a period of significant change I know the programme will continue to make progress and deliver safely.”

**May**

Four boxes, four stores...

Dungeness south side site clearance

Demolition work at Dungeness stepped up a gear when the link bridges between the reactor buildings and the site’s conventional plant were removed.

With the turbine hall and surrounding buildings isolated and the link bridges removed the area is ready for demolition.

Wylfa’s final outage

“A lot of the tasks we completed were for the final time, such as boxing up the vessel and gassing up, as well as using remote inspection equipment that had served us well for the last 40 years.

“The site’s final health check will enable us to go on to deliver the final period of generation. I am proud to say that I was involved in the last ever outage and am grateful for the effort made by everyone involved.”

Magnox celebrates after winning RoSPA accolade

Magnox celebrated after winning the Royal Society for the Prevention of Accidents (RoSPA) Sir George Earle Trophy – internationally recognised as the premier performance award for occupational health and safety.

The company took ten further awards, including the prestigious Engineering Construction Sector Award, at the 2014 RoSPA Awards.