



innovate

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Windscale Winners



One of the 'unsung heroes' of Britain's nuclear industry is receiving a new lease of life. NNL's Windscale Laboratory, on the Sellafield site, is being refurbished and improved at a cost of around £45M.

Industry Workhorse

The plant has earned a facelift, having operated for more than four decades carrying out work of strategic national importance, including a variety of active handling, characterisation, inspection and analysis and re-packaging operations. This work helps to keep nuclear sites, including Sellafield and also the UK's operating nuclear power stations, running smoothly.

The laboratory is situated on the part of the Sellafield site, which retained the 'Windscale' name when BNFL and the UK Atomic Energy Authority became separate companies in the early 1970s.

The facility itself comprises a number of large heavily shielded cells, known as

'caves', all configured and operated differently to carry out varied work for customers.

Core capabilities for the laboratory include the post irradiation examination (PIE) of reactor materials including graphite, sample preparation and examination. The plant also handles radioactive sources, many from the medical sector.

To support this work, the facility features a range of cranes and other infrastructure, including a fuel element transfer tunnel running the whole length of the building that enables the handling, transfer, preparation and inspection of highly active materials.

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NNL operates at six locations in the UK:

Sellafield, Cumbria
 Workington, Cumbria
 Preston, Lancashire
 Warrington, Cheshire
 Harwell, Oxfordshire
 Stonehouse, Gloucestershire

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Windscale Winners

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New Investment

Over recent years, the Windscale Laboratory has required regular attention and maintenance to continue operating. Now, to help secure operations for the future, significant investment has been agreed with the Nuclear Decommissioning Authority (NDA) over a period of around five years. And the work has already begun.

While the investment activity is being carried out, the NNL team has been working hard to balance ongoing plant operations to support customers with the needs of the refurbishment programme.

"The investment being made in the Windscale Laboratory will eventually be valued at around £45M and supports our belief in the long term future of the facility and the people who work in it," said Reactor Operations Support Director Leigh Wakefield.

"The work will return the facility to its rightful place at the cutting edge of nuclear materials handling and inspection. Once delivered, the capability of the Windscale Laboratory will once again match the talent, dedication and professionalism of the team that operates it."

The refurbishment work will include removal of legacy waste items from the building as well as major improvements to access arrangements, material handling and import/export capability, the fuel element transfer system, ventilation and electrical cabling.

Successful management of this investment will provide the key to unlocking the full potential of the facility in future, to help deliver on existing commitments and to attract new work.

Challenges Ahead

As might be expected with a plant dating back to the early years of the nuclear industry, there are a number of challenges to be overcome on a project of this scale. These range from simply gaining access to some parts of the facility, the removal of larger items of waste material from both the caves and the building infrastructure and installation of sizeable pieces of equipment such as new cranes.

A further challenge, not to be overlooked, will be implementing the major refurbishment programme without impacting on the delivery of vital work to customers, such as the programme to deal safely and effectively with legacy oxide fuels recovered from the Pile Fuel Storage Pond (PFSP). This work was described in Issue 1 of Innovate.

"Over recent years within the NNL Windscale Laboratory we have become increasingly successful at balancing the varying demands on the facility. Thanks to the daily commitment of everyone in the building, our customer deliverables have been successfully integrated with plant maintenance schedules and the refurbishment programme," said Windscale Laboratory Manager Des Wright.

Major customers, including Sellafield Limited, EDF Energy and the Ministry of Defence, have worked closely with NNL to align their individual programmes with plant availability and the best interests of all stakeholders.

"The work is being undertaken alongside routine operations. We've managed and planned plant outages that enable the refurbishment programme to progress as efficiently as possible while continuing to deliver successfully on agreed programmes for customers," added Des Wright.

"As a result, there's an impressive 'can do' attitude around the plant that builds confidence that we'll deliver on the programme."

A Foundation for the Future

In parallel with the new investment secured for refurbishment of the Windscale Laboratory, NNL has also agreed a new 22 year lease with the NDA to operate the building. This means that NNL can be assured of having this vital facility at the heart of its operations available for over two decades to come. A matching 22 year lease has also been agreed for NNL's Central Laboratory, which is also located on the Sellafield site.

Major steps in securing and improving nuclear laboratory facilities are vital to the future of NNL and to the wider outlook for nuclear research and development in the UK.





Baroness Bryony Worthington

NNL Reactor and Fuel Cycle Reports Published

In its role as a key advisor to Government, NNL has been investigating advanced reactor systems, their levels of development and suitability for potential deployment in the UK.

NNL findings have recently been published on the Department of Energy and Climate Change (DECC) website. NNL has been supporting work being carried out by DECC to consider how the UK's energy system might evolve in the future. This involves the roles that different types of energy generation may play, including assessment of new designs of nuclear reactors and new types of fuel. These new types include thorium fuels.

The NNL reports for DECC considered the relevance to the UK of a series of nine advanced reactor systems and fuel cycles. The findings have offered an insight into potential advantages and disadvantages of the systems and have highlighted some of the challenges that still exist around development.

NNL has also conducted a comparison of the thorium and uranium fuel cycles. A position paper has been

published on this topic, which looks at the relative advantages and disadvantages of the thorium fuel cycle. We are keeping a close watch on this area.

A new All-Party Parliamentary Group (APPG) on Thorium was created in March 2012 to consider the potential of this new energy source. NNL was delighted to welcome APPG Chair Baroness Bryony Worthington and other members of the group to the Central Laboratory, accompanied by representatives of the Weinberg Foundation, who are active in this area.

The visitors enjoyed an extensive tour of the facility and discussed the science and technology behind NNL's position on thorium. NNL has the capability to be able to carry out more research into thorium fuel and fuel cycle technology and the group discussed some ways in which this might be possible.

Jim's the ESARDA VP

Established to advance and harmonise research and development for safeguarding nuclear materials, the European Safeguards Research and Development Association (ESARDA) includes leading organisations from around Europe. NNL features strongly in this exclusive group.

Jim Tushingham, who is based at NNL Harwell, is an experienced co-ordinator of the UK safeguards support programme. Jim has recently been appointed to the prestigious and influential post of Vice President of ESARDA. He took up his new position from January 1 and will join the Executive Board. He will also take over the ESARDA presidency from January 1, 2015.

Jim has been active within ESARDA for a number of years and chairs the Destructive Analysis Working Group in addition to doing work for the association's editorial committee. At NNL, he administers the nuclear safeguards programme on behalf of the UK Department of Energy and Climate Change (DECC) in addition to his co-ordination role for the UK safeguards support programme.

New Look for NNL

Sharp-eyed readers will have spotted that the inaugural issue of Innovate carried a different look for NNL. Last September the company launched a new brand identity and this led to new signs for all of the Lab and office buildings as well as new brochures, business cards, exhibition materials and so on. And – to put the icing on the cake – a new website was launched too.

NNL Managing Director, Paul Howarth, commented: “As our industry evolves, we in NNL plan to raise our profile and demonstrate our ability to deliver world-class science and technology solutions to all of our customers.

“That involves establishing a truly world leading brand and identity in the nuclear industry which builds on our heritage and track record. I’m delighted with the move to our new identity, which retains the essence of our original logo, but has a more modern, technical and professional feel to it.”

Anyone needing a copy of the new logo for use within their own organisation should contact NNL Communications Manager Gareth Thomas via gareth.x.thomas@nnl.co.uk

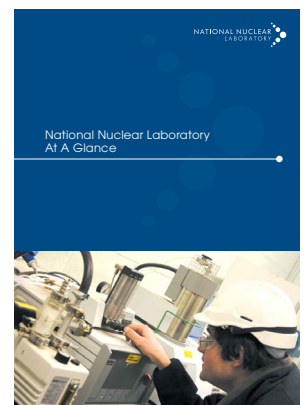
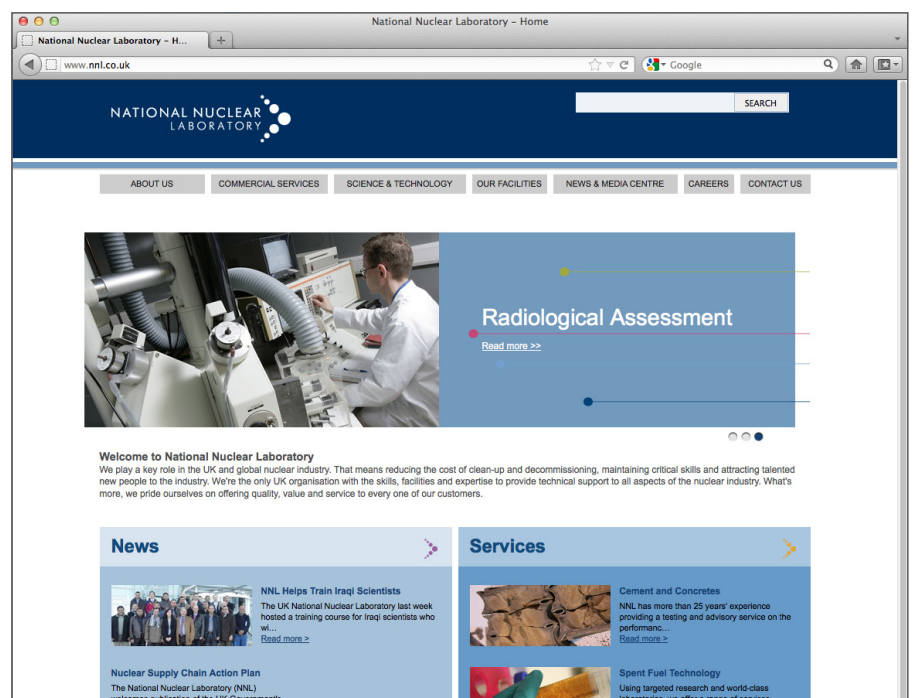


NNL Visit for Sir David

Former UK Government Chief Scientific Advisor Professor Sir David King visited the NNL Central Laboratory at Sellafield recently in his role as founding Director of the Smith School.

The school is based at the University of Oxford and is very influential as an interactive hub that engages with public and private enterprise to address major environmental challenges.

Sir David remains a very influential figure in the global scientific community and NNL was delighted to host him on a tour of its flagship facility. He also took the opportunity to meet with a number of NNL’s younger scientists over lunch, for a wide-ranging discussion on their work and the future prospects of the nuclear industry.



Caring for Copeland

Members of Copeland Borough Council, who represent the district which includes the Sellafield site, recently visited NNL at the Central Laboratory. Council Leader Elaine Woodburn was joined by several fellow members in discussions with senior NNL executives and undertook a tour of the facility.

The visiting group held discussions around plans for maintaining and increasing NNL's contribution to the local economy. Copeland Council takes a central and leading role to manage the relationship with the nuclear industry in the area.

The Council has created a new department to develop policies and initiatives, which aims to achieve objectives in relation to economic, environmental and social sustainability. Engagement with

industry and linking it with the local community is a key part of Copeland's strategy, which is looking to maximise the benefits the industry can provide to the community.

Adrian Bull, NNL's External Relations Director, who helped to organise the visit, commented: "In NNL we view our links with Borough and County Councils as extremely important. I'm pleased that this visit provided Copeland with the opportunity to provide an update of their plans and

for NNL to emphasise its important role in the future of the West Cumbrian economy.

"We will remain in close touch with the Council on a number of topics as things progress."

Since the visit took place, NNL have recruited two new members of staff who have links and experience which will help bolster the relationship – Eileen Turner and Ian Jackson – see page 10.

IAEA General Conference

NNL attended the 56th annual session of the IAEA General Conference held last September in Vienna. More than 3 000 delegates from 155 IAEA member states, international organisations, non government organisations (NGOs) and the media attended the event.

NNL's Director of External Relations, Adrian Bull was a panellist at a lunchtime event at the Conference organised by DECC and UKTI, aimed at showcasing the UK's nuclear industry to a range of nations with interests in nuclear – either through their existing nuclear programmes or because they are considering building nuclear plants for the first time.

The panel was chaired by Susan Le Jeune – the UK's Ambassador to the IAEA – and included representatives from Lloyd's Register, Norton Rose, Burges Salmon and the National Skills Academy for Nuclear, in addition to NNL.

Speaking after the event, Adrian said: "This was a timely opportunity to remind international delegates from all over the world about the wide range of capability and experience we have in the UK – not least NNL – and how we could potentially benefit them in their own countries."



NNL Joins Leading Global Nuclear Security Body



NNL has announced membership of the World Institute of Nuclear Security (WINS). An international forum within which nuclear security professionals can share experience, best practice and learning, WINS has over 1,200 corporate and individual members.

Joining WINS reflects NNL's increasing involvement in the wider nuclear security sector and the company's position as a provider of technical support and products which help to improve resilience in nuclear and related fields.

The news follows on from previous collaborations between NNL and WINS in the field of human reliability

assessment. It is recognition that the two organisations have a number of areas of mutual interest and common objectives.

NNL Head of Security, Jeremy Davison said: "I'm very pleased that NNL has joined WINS as a corporate member. We are increasingly involved in the security sector – both as an operator of facilities and as the provider of science and technology solutions.

"We are strong believers in the value of scientific and technical innovation in developing ever-improving security systems and methodologies for the protection of key materials and assets. We are looking forward to playing our part in the WINS network to help ensure the industry is as robust and resilient as it can be."

Welcoming NNL to the WINS

community, Executive Director Roger Howsley commented: "I'm delighted to welcome NNL to corporate membership of WINS and I'm looking forward to building on our previous links as we work together in future.

"There's a clear benefit in having good links between the science and security communities of the nuclear industry, both to enhance security performance and effectiveness and to ensure that the scientific community has a strong security culture."

Security is becoming an increasingly important factor to be considered in the 21st century and the nuclear industry is no exception. NNL will participate in WINS to share expertise in security technology, its application and to identify and take on board best practice from other members.

NNL Position Paper – Proliferation Resistance

NNL's latest position paper 'Proliferation Resistance and Physical Protection' (PRPP) has been published.

The assessment of inherent PRPP characteristics as part of nuclear systems is becoming increasingly important internationally. Work to develop advanced nuclear systems (Generation IV) and the IAEA International Project on Innovative Nuclear Reactors and Fuel Cycles (INPRO) have both identified the need to strengthen features that provide inherent PRPP.

NNL has been proactive in developing a PRPP assessment methodology in support of UK requirements. Although assessment methods were developed primarily to guide decision making on advanced reactor and fuel cycle research, they can also be applied in other areas such as the management of historic UK liabilities.

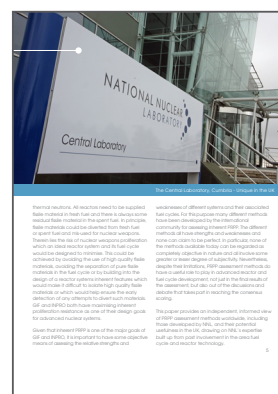
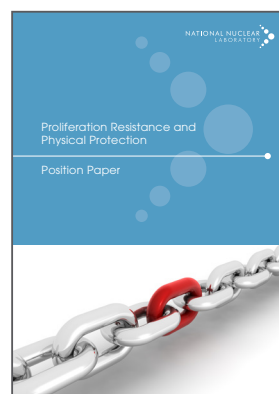
This new position paper explains the issues involved in PRPP assessments

and highlights why NNL decided to develop its own methodology and why the new method is suited for real world application not only in the UK, but also globally.

With many years of experience of the nuclear fuel cycle and associated science and technology, NNL is in an ideal position to advise decision makers on key topics which are important when considering the UK's

ability to meet nuclear challenges. A series of position papers from NNL reflect independent and authoritative views and are supported by underpinning studies.

A copy of 'Proliferation Resistance and Physical Protection' is available to download at www.nnl.co.uk/positionpapers along with other publications in the series.



Kevin Strengthens Academic Links



UNIVERSITY OF BIRMINGHAM



NNL has been strengthening links with the academic sector for a number of years including a series of high profile appointments into Universities. Senior Research Fellow Kevin Hesketh is the latest to transfer his skills and knowledge having been appointed as Visiting Professor at the University of Birmingham Centre for Nuclear Education and Research.

The Centre is based in the Department of Physics and Astronomy.

Kevin will focus on nuclear education, initially lecturing on the post graduate course Physics and Technology of Nuclear Reactors (PTNR) and to the Nuclear Technology Education Consortium (NTEC). He also expects to be involved in examinations and

will undertake other related roles.

Kevin commented: "NNL has had a link to Birmingham University for some years now and I'm delighted to build on that past work by taking up this position. The PNTR course has been running for decades and is well-known around the world. It's an honour for me to be associated with it."

Showcase to the States

NNL recently took part in a US Department of Energy webinar to present details of a number of technologies that we have deployed at Sellafield that could be used to support the Hanford Waste Treatment and Immobilization Plant (WTP).

NNL presented information as part of a 'Best of British' consortium, which also included NuVision Engineering and BHR.



U.S. DEPARTMENT OF ENERGY

The webinar involved a number of other companies including Sellafield Limited, Harris Corporation, Fluor Corporation and two US National Laboratories - Savannah River and Pacific Northwest. It was chaired by Rod Rimando from the USDOE.

Nick Hanigan, NNL's Director of Decommissioning and Waste Management said: "This was a fantastic opportunity for NNL as it allowed us to showcase our technologies to US companies and senior members of the Government, including US Secretary of Energy Dr Steven Chu."

Burning the Sun

Starting at Sunrise and finishing at Sunset, NNL colleagues Kevin Hunter and Jason Dean raced the burning star and completed an extreme physically demanding challenge across three distinct athletic disciplines.

The pair took part in a team challenge in the Lake District. They and two friends christened themselves the 'Knitted Tyres' and cycled 50 miles, hiked up Helvellyn and finished by canoeing Thirlmere Lake.

Sellafield based Kevin and Jason raised an impressive £2,000 for children's charity 'Action Medical Research' and managed a tremendous second placed finish out of 90 teams. They actually completed the course in first place in their age category (golden oldies) and were almost an hour ahead of the third placed team. They were beaten for the overall first place by a matter of minutes with a combined time of seven hours and 37 minutes.

The latest 'Race the Sun' event is the eleventh and is a triathlon-style adventure challenge but with greater physical and mental stamina required from the willing participants. Having first completed the initial stage of the 50 mile cycle ride, the hike up England's second highest mountain placed the competitors at 3,116 feet or 950m. The canoe challenge was made around a three kilometre course before the second stage of the cycling was completed.

Although the Knitted Tyres were slightly deflated at the end of their colossal effort, they are considering a return to competitive action in another logic defying challenge. This may be in Race the Sun 2013 due to take place in the Brecon Beacons. They may decide to re-mould themselves and discover another event that will test their endurance even more.

Jason and Kevin are no strangers to lung busting events and are always prepared to challenge themselves for good causes. They represented NNL and the charity UK Youth in the London marathon three years ago. Running a mere 26 miles – sounds far too easy!



Snakes Slither to Success

A great cause and willing volunteers is the perfect recipe for fundraising success. Simon Shipman kept it in the family to lead the 'Cumbrian Racing Snakes' to half marathon glory and raise much needed cash for a pioneering hospital in the West Midlands.

Simon, who is based in the Windscale Laboratory, roped in his three daughters and their partners to complete the Birmingham half marathon. The group was raising cash to help the Queen Elizabeth, the largest hospital in the West Midlands, buy important equipment to treat tumours which would previously have been considered inoperable.

The Racing Snakes consisted of Simon and his daughters Laura, Rosie and Jess, Laura's husband John and the other girls' partners Dave Rogers and Matt Scott. The cause was a very personal one for them as John was diagnosed with a rare cancer around 18 months ago. He received treatment and is now fit and healthy once again. The team name came from Simon's daughters poking fun at him as he used to run competitively before discovering the merits of pies and Guinness and slowed down to the pace of a snake!

The team decided to run as a group and stick close to each other and finish together. They achieved their aim and in a bunch sprint they clocked a very respectable two hours and 25 minutes. The collective generosity of friends and colleagues, together with a contribution from NNL, helped to raise in excess of £6,000.

John said: "Our initial target was £2,000, so it's fair to say that we are enormously grateful to everyone that has helped us raise so much more than we thought we could."

Now that he has completed his greatest challenge, Simon reports that he has returned to his favoured pie and Guinness diet – with just the occasional jog thrown in for good health.



Lindsay's Pink Campaign

October was 'Breast Cancer Awareness Month' and 2012 has been the 20th year of the Pink Ribbon campaign.

NNL Business Manager Lindsay Edmiston has made a positive contribution to raising awareness of breast cancer and at the same time has also helped disadvantaged communities. Lindsay and her friend Wendy Trow, who works for Sellafield Limited, are both members of 'Soroptimist International of Cockermouth and District' in Cumbria.

The pals set out to 'turn Cockermouth Pink' in early October, with 76 businesses decorating their shop windows and also teamed up with the charitable organisation Oxfam to support their recycling project.... The 'Big Bra Hunt'.

At NNL, Lindsay organised 'Bra Collection Points' across various locations. She was after any old, unwanted or unloved bras for recycling and urged colleagues to ask partners, family and friends too.

180 bras have been collected and sent to the Oxfam

recycling facility and from there they are sent to Senegal where they are sorted, repaired, recycled and sold in Oxfam's ethical social enterprise project. Lindsay explained that British bras are especially sought after because of the quality and complex technology used to make them.

She was keen to thank her colleagues in NNL for supporting the project. She said: "NNL's 180 bras together with 450 collected throughout Cockermouth made a real impact on the 'The Big Bra Hunt'. It's also been really encouraging to see the engagement and fun people have had talking and discussing the project."

The Breast Cancer Care charity provides support for anyone affected by breast cancer and provides information for everyone. It also campaigns for improved standards of care. For more information, check out the website at 'www.breastcancercare.org.uk'.

New Arrivals Boost

NNL has recently welcomed two very experienced nuclear industry figures into the organisation, both of whom will be 'out and about' meeting colleagues around the industry straight away.

Ian Jackson



New Business Development Manager Ian Jackson arrives at NNL with an impressive track record, covering delivery of projects and training in the UK and internationally.

He is perhaps best known for the report he prepared for UK Government as an assessment of potential nuclear new build sites which became known as 'The Jackson Report'. He also wrote a similar report focused on Cumbria, which was commissioned by Copeland Borough Council and is the author of the book 'Nukenomics: The Commercialisation of Britain's Nuclear Industry'.

During his 25 years in the nuclear sector, Ian has been involved in a range of complementary areas. This includes spells as a researcher with the UK Atomic Energy Authority (UKAEA), as a regulator with the Environment Agency and working in industry with British Nuclear Fuels (BNFL) and Halcrow, as well as being a policy advisor at the Royal Institute of International Affairs ('Chatham House') and – most recently – running his own consultancy business.

Huw Morgan, NNL Strategic Business Development Director, said: "It's a

great coup for NNL to attract Ian as his breadth of technical, commercial and policy knowledge is second to none in the industry. He will be an invaluable part of our team as we increasingly seek to exploit our technical capability to new customers on the international stage."

Reflecting on his new role, Ian added: "I strongly believe that the time is right for NNL to grasp some of the exciting international opportunities which are out there in the global nuclear industry today and I believe I can help them to be successful in that."

Eileen Turner



Communication with external stakeholders in the nuclear business is becoming increasingly important. The recent appointment of Eileen Turner to a new position as Stakeholder Relations Manager in Cumbria strengthens NNL's presence in a key geographical area.

A major part of Eileen's role is to be the local 'face of NNL' with a range of customers and other stakeholders in the West Cumbria region.

In particular she will work closely with Sellafield Limited, the Nuclear

Decommissioning Authority (NDA) and others on communications matters connected to NNL and the Company's facilities, products and services.

Eileen comes to NNL with extensive stakeholder related experience, which makes her ideally suited for her new role. She has over 20 years of experience in nuclear sector communications, all of it based on the Sellafield site.

She worked as Deputy Head of External Relations for Sellafield Limited for several years and has lived in Cumbria for 30 years, so she is already well known to many stakeholders in the region.

NNL's Director of External Relations Adrian Bull said: "I'm delighted Eileen has joined us to boost our external relations in West Cumbria. The region is at the heart of both NNL's work and the wider UK nuclear industry. It became clear when I joined NNL last March that we should have someone based in Cumbria to allow us to play our full part in everything that's going on here. Eileen's background makes her the perfect person to do that."

Eileen added: "I've been fascinated to see how things have evolved in the industry and what a dynamic company NNL has become over recent years. I'm very excited to have joined the company at what is sure to be a pivotal time in its evolution and I'm also looking forward to renewing my relationships with many friends and acquaintances in the region."

NNL in the Media

Over the past few months, NNL has attracted quite a lot of attention in the media – both the nuclear press and the national papers. We like to think our renewed profile is a sign that we're doing plenty of things which people find interesting. In case you missed out, some of our media coverage includes:

• The official journal of the Nuclear Institute, 'Nuclear Future' recently featured a special edition focused on research and development. That included both a comprehensive article about NNL's unique Plutonium and Minor Actinides (PuMA) Laboratory written by Katie Bell from the Radiochemistry team and a joint piece by NNL and the University of Manchester on the combination of unique nuclear user facilities at the Central Laboratory and the Dalton Cumbria Facility.

The technical journal, 'Nuclear Engineering International' included an item on the use of virtual reality software in nuclear applications and this focused on NNL's work using the 'AVERT' software package to model security arrangements of nuclear facilities and their resistance to malicious attack. One 'guinea pig' for this approach has been NNL's Central Laboratory.

• Adrian Bull, NNL's External Relations Director, made an appearance in the October issue of 'Nuclear CONNECT', the magazine aimed at nuclear management and procurement. Adrian was the subject of a question and answer style interview, which gave him the opportunity to present his views on the nuclear industry in the UK, future issues and the role of NNL in delivering viable solutions.

The Royal Society of Chemistry included a profile interview with NNL Senior Research Technologist Phil Roper in the October issue of 'RSC News'. Phil is the RSC representative at NNL Warrington and co-ordinator for the RSC-NNL accreditation scheme.

• The journal of the Institute of Materials – 'Materials World' – featured NNL in its October edition. Senior Research Fellow Kevin Hesketh and Head of Security Jeremy Davison examined the potential of uranium and plutonium as energy sources.

A prominent feature in the Sunday Times recently followed on from similar articles in the Financial Times and on the BBC's website – describing work being done by NNL to develop nuclear-powered 'space batteries' for use in missions to deep space, where solar or other power sources are not appropriate. This work is potentially a win/win, as we are looking at using the material americium, which is recovered from cleaning up old stocks of plutonium. Tim Tinsley, Business Leader in NNL's Fuel Cycle Solutions team, earned his stripes as a media star by succinctly explaining this work to print and radio journalists alike.

• The Winter 2012 issue of the Nuclear Industry Association's 'Industry Link' magazine includes a two-page feature on NNL's prospects, entitled 'Opportunity Knocks for National Nuclear Laboratory'. The piece captures the positive tone of all of the recent coverage on NNL.



NNL People: Jonathan Hyde



Scientific and technical performance is of the utmost importance to NNL in providing excellent solutions for customers and other stakeholders, as the company performs a key role positioned between academia and industry to develop basic science into proven technology. Newly-appointed Chief Technologist for Reactor Operations Support, Jonathan Hyde, is at the very heart of much of this exciting and innovative work.

Technical Leader

With NNL providing technology support across the complete nuclear fuel cycle, Chief Technologists face challenge on a wide ranging scale. "NNL is uniquely placed between academia and the industrial sector," said Jon. "NNL and universities have complementary capabilities and our aim is to identify synergies that enable us to deliver useable technology for industry to deploy.

"For instance, we have the capability across our sites to carry out experimental work on nuclear materials in world class licensed facilities whereas work in the University sector is often performed on a relatively small scale using surrogate or low activity materials.

"NNL can build on academic research, provide research and development on more active samples and convert the science into proven technology that can then be used with confidence in the

industrial sector. With such a key role, it's important we maintain and build our technical capability and reputation in a professional way."

Power Station Support

Jon represents NNL in reactor-related areas such as post irradiated examination of fuel, graphite, components and power station chemistry. The work helps keep the UK's nuclear stations operating – generating reliable and clean electricity.

Describing the key strands that make up his role, Jon said: "My job is to make sure we have the right levels of technical capability and credibility as reputation is so important for the future of my own business area and that of NNL.

"This will support our involvement with customers and in national programmes in the future. Skills and capability are vital so it's also important that we get succession planning right in the key technology disciplines."

New Appointments

Jon is one of three new Chief Technologist appointments in NNL, the others being Anthony Banford for the Waste Management and Decommissioning business and Mike Angus for the NNL corporate area. Richard Stainsby will be joining early in 2013 as Chief Technologist for the Fuel Cycle Services business.

"We're helping to drive the future technical direction and growth of NNL," said Jon. "It's a big responsibility that reflects on our commitment to delivering the best available science and technology to customers and other key stakeholders such as Government."

Enthusiasm, Oxford, Cambridge and Harwell

With a lifelong passion for science, it's not surprising that Jon's career path led him to NNL and a Chief Technologist role. "I've always been fascinated by science," he said. "During a gap year before University I was very fortunate to have an opportunity to work in the

Department of Materials at the University of Oxford, before switching to Cambridge where I studied Natural Sciences focusing on Physics. It was a very challenging course that set me up well for a career in research. I decided I wanted to carry on after graduating and swapped light blue back to dark blue when I came back to Oxford to undertake a PhD in atom probe tomography."

This provided a tremendous grounding for Jon early in his career. He then enjoyed a stint in the USA at the Oak Ridge National Laboratory in Tennessee. "I had a tremendous few months at Oak Ridge following my post doctoral fellowship," he said. "The location and lifestyle were a complete contrast to Oxford, but the scientists were similarly dedicated to delivering very high quality research and had very impressive facilities at their disposal."

When he returned to the UK, Jon was eager to start his career and joined the United Kingdom Atomic Energy Authority (UKAEA, later AEAT) at Harwell as a research scientist. That was in 1995 and in 2003 the company made a strategic decision to rationalise and move out of the nuclear business. That part of AEAT became firstly a part of BNFL and then part of NNL upon its formation. "It was a challenging transition for all of us," said Jon. "Looking back it was the right decision as we've succeeded in continuing to deliver cutting edge R&D to our customers. While we lost on-site experimental capabilities we've gained by interacting more closely with the University sector. We're supporting a business with a great future and we're attracting younger talent."

"There's an abundance of energy, commitment and drive here at Harwell and we're looking forward to using our key skills to make a big contribution to the future of NNL and nuclear sciences in the UK."

Growing the Technical Community
Chief Technologists, along with NNL's Research Fellows, are becoming

core members of the new NNL Science and Technology Committee led by Chief Science and Technology Officer Graham Fairhall. This group of internationally recognised experts will take an overview of technical strategy and activities across the business.

"We're looking to develop our technical reputation and prove to customers, the external technical environment, Government and other stakeholders that our work and advice is of the highest quality and fit for purpose," said Jon.

"If we're successful and demonstrate our capability externally, we will be in a position to attract new customers, grow the business and develop our strategic role in the UK."

Making the Most of Great Ideas

Chief Technologists also channel the technical and intellectual horsepower in NNL to drive contributions to the Internal Research and Development (IR&D) programme. The scheme is in its fourth year and NNL has spent close to £1M each year across 'Entrepreneurial' and 'Signature' research.

Entrepreneurial ideas cover nuclear and associated topics and are professionally reviewed through a 'stage gate' process. "The aim is to commercialise new ideas and create NNL owned intellectual property," said Jon. "In the first three years, we've seen almost 300 inventive ideas that have resulted in 19 patent applications and a further nine invention records."

"The programme has achieved direct income and other leverage of over £7.5M through involvement in University and European Union funded programmes. We look to develop products through to market and create value for NNL."

Family Sportsman

Married to Karen, Jon lives in Radley in Oxfordshire with their four children aged from 9 to 14. He is a native of the county, having been born in the village of Eynsham. Radley is famous

for its independent boarding school for boys and Jon too is heavily involved with school education in the area. He joined the Governing body of the local primary school over 10 years ago and has been active in helping to drive up standards.

He is also a Governor at his local comprehensive, Fitzharrys School in Abingdon. He has just been appointed Chair of the Learning Achievement and Student Welfare Committee. "Being a Governor means you're playing your part in shaping the future for young people," he said.

Jon spends as much time as possible with family but still manages to maintain a love of the outdoors and travelling. He's travelled extensively in Asia (China and India) and toured much of continental Europe by bicycle and tandem.

"Cycling in Norway was particularly extreme, contending with snow and tunnels, but definitely worthwhile – there's not much that beats being blown along a Norwegian Fjord!" He's also taken to his bike to navigate the Alps and the more traditional run from John O'Groats to Lands End.

He describes himself as an 'occasional' runner although he has completed six marathons and participates over shorter distances at Harwell. Twice winner of the Harwell Track Trophy for the most points gained over the summer season, Jon commented: "It's good that races are handicapped based on age – it's the only way I can keep up with the youngsters!"





Questions and Answers

Howard Greenwood



Tell us about your job?

I work with a great team of people at the NNL Preston Laboratory looking at the treatment of low activity uranium wastes and residues. I'm in a technical area among chemists and chemical engineers. We look at all aspects of processing materials that are usually quite challenging to handle and manage.

We inspect, sample, characterise and test if the materials can be processed by available techniques. If not, we can create, develop and test other techniques and eventually deploy them at full scale via our unique and very flexible pilot plant at the Preston Laboratory.

How long have you been in the nuclear industry?

I've worked in the nuclear field since the early 1980s and have been with NNL and its predecessors since 1986.

How did you come to be doing the job you have now?

I've always been fascinated by all things nuclear. I completed a specialist module in Nuclear and Radiochemistry as part of my undergraduate studies. I then undertook a PhD in Radiation Chemistry and was a University Demonstrator in Inorganic and Nuclear and Radiochemistry at the University of Salford.

I then became a researcher at Imperial College, studying nuclear waste treatment. I joined BNFL in 1986 to work on effluent and residue treatment... and I'm still at it.

For the past quarter of a century we've been working our way through stocks of uranium related materials and other similar residues owned by various customers. Over the years, I think we've developed a reputation for getting the job done.

I find the work fascinating and there is still much to do stretching out into the longer term. On a personal note, there's been so much to do and the work has been so interesting, I've never applied for another post and probably never will.

What are you most proud of in your time at NNL?

Working with the best bunch of people you could ever hope to meet and always managing to come up with a technical solution that works. I'm also pleased that nearly all of our solutions have proved to be value for money for the customer too.

What does working at the National Nuclear Laboratory mean to you?

A very great deal, I always had a fear of winding up in a job with no meaning. Working with NNL and my colleagues means I'm certain that



demon has been well and truly nailed. This is important stuff!

What aspects of your job do you like the most (and the least)?

I like both the depth and breadth of the technical challenges we face and working with colleagues for whom I have the deepest respect. This applies to both our immediate team and the wider community.

The regulation and structured framework around anything nuclear is obviously there for very good reasons. But, this can result in some frustration when things appear a little over bureaucratic and you're faced with a deadline. I also don't enjoy my daily sparring with information technology... I appear to have a unique ability to make any printer break down – especially when I'm in a hurry!

Tell us something about yourself that many people don't know.....

I like to collect rocks and minerals, fossils too. Looking at something that has been around for a few hundred million years gives me a buzz.

Who or what is has been a big influence on your career journey?

I'd say my eyesight.

The reason is that I was planning to fly helicopters in the Navy but my vision deteriorated slightly to the extent that I had to wear spectacles,

so that was ruled out. I look back on that now as a lucky break, although it didn't seem it at the time.

What advice would you give to someone thinking of joining the nuclear industry?

Do it.

What do you do to relax outside of work?

Relaxing may be the wrong word here, but I have a number of jobs in the Scout Association and they are all great fun and worthwhile.

My favourite is running the Scout Troop in the village where I live. The thirty 10-14 years olds really don't care how many hours you've spent at work meeting deadlines and fighting with IT!! Although running the Troop is very busy and makes demands on your time, energy and intellect I guess it is relaxation of a kind and also very rewarding!

Also I like to read and walk, but not both at the same time. I also like the US TV comedy 'Big Bang Theory' – it's made being a geek cool!!

What is the first thing you pack to take with you when you travel away from home?

I have two items – a Swiss Army Knife and a brimmed Tilley hat. Both items are classed as "the world's best" and guaranteed for life! I can't understand how anyone can leave

home without at least one of these items.

People laugh but the Tilley hat has great ventilation, a 'secret' pocket and is guaranteed to float on water. And how many hats come with a four page owner's manual?

The knife is much more than just a blade, it's a multi tool! You never know when you'll need a screwdriver or a can opener. I'm always getting the question: 'does your knife have something that will....?'

My favourite was using the knife's sewing kit to repair a bridesmaid's dress before a wedding. I'm assured that this averted a major crisis. Even my wife, who was surprisingly cynical about it, had to admit the thing was useful!

What famous figure would you most like to meet?

He's no longer around but I would choose Sir Winston Spencer-Churchill. What a guy – charismatic, unbelievable leader, statesman and deliverer of great quotes.



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