



FEATURES

SOLWAY ENERGY GATEWAY P3

Update on progress with the design and development of the Solway Energy Gateway Project (SEGP) by Nigel Catterson, Chairman of SEG.

BORN ELECTRIC: BMW i SERIES P3

Car enthusiasts of the engineering world experience the latest development of BMW's 'plug-in' hybrid sports car, the i8.

11th ANNUAL DINNER P4

Guests of honour this year included Nigel McKnight, Team Founder of Quicksilver and Colin Brown, Engineering Director of the IMechE.

AN INSIGHT INTO IGGUSUND P5

An evening looking into the company history and work done by Iggusund Paperboard, a guided tour and presentation on the Workington plant.

EVAPORATOR D P6

Uncovering the problems that arose during the fabrication of Evaporator D and understanding the root causes of the issues encountered.

MOORSIDE PROJECT P6

Project to upgrade existing Electricity North West pylon lines to accommodate the construction of a new nuclear power station near Sellafield.

GATEWAY TO EUROPE P7

A visit to the Port of Workington to see how a £5.7 million redevelopment is progressing in making the West Cumbrian port a key player in Europe.

UPCOMING EVENTS 2015

AUTUMN/WINTER CALENDAR P8

Take a look at the back page for our Autumn/Winter events calendar. Get yourself booked onto one!



NEWSLETTER

INSTITUTION OF MECHANICAL ENGINEERS WEST CUMBRIA EDITION

CHAIRMAN'S COMMENT

Welcome back to our new season of events, although I won't say Autumn/Winter as I'm still confused over where the Summer was.

I'd like to thank the committee, young members and volunteers for their efforts during the past year. It has again been challenging to maintain progress and we have this year seen a number of new members for both committees join to help take us forward, but we have also seen a few of the old guard move onto pastures new. We thank them for all their support and hope they will return in the future.

This year we will continue to focus on developing partnerships within education, local companies and other institutions to increase awareness of the potential that lies within the Engineering Industry. With the new government in place, it is imperative that we maintain momentum and pressure to bring the challenges to the forefront of their thoughts. We are now entering a time when a large number of capital projects are set to start and the resource gap will only widen unless we change the political and education mind-set at the earliest opportunity.

With our new season about to start, I would like to introduce you to this autumn's edition of the West Cumbria Area Newsletter. Here you will find write-ups of the Engineering Activities we have undertaken over the last 6 months, including our visits to Lloyds BMW for a talk on the new i8, Iggesund Workington which produces Incada, a multi-layered Folding Box Board (FBB), and the Port of Workington where a

talk and tour was given on its redevelopment. There were also talks on the North West Coast Connection and the Learning From Experience (LFE) from the Sellafield Evaporator Delta project.

There's also a write up about our Annual Dinner at Lakes College West Cumbria, where guests of honour were IMechE Director of Engineering, Colin Brown, and Quicksilver founder, Nigel McKnight. To show our appreciation for Nigel's attendance, pictured above, IMechE West Cumbria invested in corporate sponsorship of Quicksilver.

You'll also find on the back page a poster depicting our Autumn events, which include a talk on United Utilities West Cumbria Connection, a visit to RAF Spadeadam, plus more.

Work will be commencing soon on planning our 2016 IMechE West Cumbria Annual Dinner, which will be even bigger and better. Talking about this year's Annual Dinner, I'd like to close by once again thanking all our sponsors for supporting this year's Annual Dinner. Without their fantastic support we would not have the funding to continue to grow our Educational Initiatives, something which is the cornerstone of what we as the West Cumbria Area Committee are here for.

I look forward to seeing you soon.

Best Wishes,

David McArthur BEng AMIMechE
Chairman – IMechE (West Cumbria)
david.mcarthur@sellafieldsites.com

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Institution of Mechanical Engineers (IMechE)

EXPANDING LOCAL KNOWLEDGE

SOLWAY ENERGY GATEWAY PROJECT UPDATE

On Thursday 15th January, IMechE West Cumbria Area hosted a talk updating progress to date on the proposed Solway Energy Gateway Project by company Chairman Nigel Catterson. Nigel, who classifies himself as a social entrepreneur, has spent most of his working career involved in the establishment and operation of a multitude of environmental-focused organisations at both local and national level.

In 2001 he established Utopia and pursued the opportunity to develop Derwent Forest, the former Broughton Moor Armament Dump, as a platform for a flagship ecological and sustainable site redevelopment project, finally winning the right to develop the site in December 2011.

In 2008 he established Solway Energy Gateway, the project to develop an ecological and environmentally benign tidal energy generation scheme across the Solway at Bowness-on-Solway, and in 2009 he became a founder Board member of Britain's Energy Coast, taking over the Chair in April 2014. Nigel previously gave us a talk on the Solway Energy Gateway Project back in 2011, and this year he gave us an update on how things are progressing.

Solway Energy Gateway Ltd (SEGL) flagship project has been conceived to generate tidal energy between Bowness-on-Solway and Seafield, Annan, at the point where a railway viaduct once spanned the Firth. The Firth is one mile across at this 'pinch' point, with the estuary widening on either side of it, consequently the tidal flow becomes



concentrated.

It has been calculated by Liverpool University that there could be a capacity for generating around 250MW from this location. And, given the experience of the La Rance barrage at St Malo in France, predictable energy could be produced for 14 of every 24 hours. Significantly, the preferred site is within 3 miles of a major electricity grid connection at the Nuclear Decommissioning Authorities (NDA) site, Chapelcross Power Station, which ceased generating in 2002.

The Solway Firth has enough energy to provide all the power that is needed locally and make a significant contribution to the UK energy requirement. Due to the significant environmental sensitivity of the estuary, conventional barrage technology would not be acceptable so the project is being built around the development of the emerging Venturi Enhanced Turbine Technology (VETT). It aims to be the first tidal site in the world to deploy this technology. The VETT captures energy from flow as distinct from head and therefore allows a longer period of energy calculated to be 20 hours out of a 24 hour cycle.

Nigel was also joined on the evening by Michael Osborne, an Engineering Geologist and Director of Arup, who has responsibility for the

Arup Energy Business in the North of England and Arup operations in Cumbria, where he has worked on a wide range of infrastructure projects including energy, roads, rail, water and airports. He has also been responsible for leading a number of economic master plans and regeneration schemes.

Michael outlined the work he has been undertaking with Nigel, and Solway Energy Gateway Project to establish the concept design and identify risks and opportunities from an Engineering Geologist aspect. Key to this is establishing the story around "the electric bridge". Michael showed a series of slides that illustrated the CFD work that his colleagues in London have undertaken to further develop and refine the VETT.

It is anticipated that uni-directional versions of the VETT will be commercially deployed in hydro settings this year. Work on the bi-directional VETT is underway and expected to be completed at some point next year. Next steps for the Solway project are the production of a scoping study which will be designed to inform the subsequent full feasibility study.

David Williamson, IMechE North West Chair

BORN ELECTRIC: PREMIUM DESIGN, DEFINED BY SUSTAINABILITY

Cars were the main attraction for local engineers and vehicle enthusiasts as Lloyd BMW hosted its first out-of-hours presentation event to the engineering community, courtesy of the IMechE on Wednesday 11th April 2015.

The Carlisle-based company gave visitors the opportunity for a more hands-on look at its new i-Series range, with the rather stylish and sporty i8 hybrid at centre stage. Not wanting to be outdone by its big brother, the fully electric i3 got equal attention from those attending.

The i8 is a two-door coupe constructed from a carbon-fibre reinforced polymer. It is fitted with a 1.5 litre three cylinder turbo-charged petrol engine driving the rear wheels and an electric motor driving the front wheels. The combined power of the vehicle is 230bhp with 320Nm of torque, which propels the vehicle from 0-60mph in 4.4 seconds.

Being a hybrid, the performance is not its only accolade. If you accelerate and drive somewhat more gently than the headline performance figures, you may be able to obtain its official fuel consumption of 134.5mpg and CO2 emissions of only 49g/km. The intelligent energy management system chooses whether and when to use the petrol engine, electric motors or a combination of both to get you to

your destination as economically as possible.

The presentation hosted by Gavin Bremner also exposed some of the less obvious features of the i8. The chassis design incorporates the heavy batteries down the centre of the vehicle to maintain a low centre of mass and to keep the seats low to the ground. The petrol engine only needs a single exhaust, so BMW have made use of a secondary exhaust pipe by placing a speaker in it that plays a lower note to give the vehicle a deeper more sporty sound.

The i3 is BMW's first zero emissions mass-produced vehicle. As with the i8, the i3 chassis is constructed from carbon-fibre reinforced polymer. The standard model is fitted with a 125kW electric motor and a 22kWh lithium-ion battery giving it a range of 80 to 100 miles on a single charge. The range extender option (REx), which includes a 647cc two cylinder petrol engine acting purely as a generator, has a range of 160 to 180 miles with just 9 litres of fuel. Due to the electric motor producing 250Nm of torque, the vehicle accelerates from 0-60mph in 7.6 seconds.

Not only did Lloyd provide extensive information on the two vehicles but they also explained the green credentials of BMW's Leipzig manufacturing facility at which the i3 and i8 are produced. The facility is one of the world's most modern and sustainable automobile factories and has up to 740 vehicles rolling off its production line every day.



Simon thanks Gavin for the superb evening.

Despite all of the modern technology and beautiful design that has gone into the i3 and i8, mechanical engineers always like to see the nuts and bolts of an engine and luckily for us a BMW 3 Series engine was in the process of being stripped down and was layed out on the workshop floor in all its glory, which was just a little cherry on the top of a very enjoyable evening.

Simon Farrell, IMechE West Cumbria

IMECHE WEST CUMBRIA ANNUAL DINNER 2015

AN EVENING OF CELEBRATION AND BACKING FOR QUICKSILVER



From left to right – David Williamson (IMechE North West Region Chair), Tim Chittenden (President of the Nuclear Institute and non-executive director of Sellafield Ltd), Nigel McKnight (Founder of Quicksilver), David McArthur (IMechE West Cumbria Area Chair), and Colin Brown (Director of Engineering for the IMechE).

On 25 June the IMechE West Cumbria Area hosted their annual dinner at the Lakes College West Cumbria. The event was attended by over 120 IMechE members, sponsors, local company representatives and guests. Our guest speakers on the night were Nigel McKnight, founder of Quicksilver, and Colin Brown, the Director of Engineering for the IMechE.

As well as being the founder of the project, Nigel McKnight intends to be the driver of Quicksilver, a jet-propelled boat being built with the objective of breaking the world water-speed record.

Quicksilver is a new boat for a new generation, inspired by the past. Nigel and his team are striving to extend the reach of human endeavour and advance Britain's technological achievements on the world stage, with the ultimate aim to bring this prestigious international prize back to these shores after a long absence.

The current record of 317.6mph has been held by Australian, Ken Warby, since 1978. The fact that the record has stood for almost 37 years indicates the major challenge that the Quicksilver project is up against.

Nigel gave a fascinating presentation on the record attempt, starting with the inspiration he has taken from previous record breakers such as Sir Malcolm and Donald Campbell, through to the current position of the project and the timescale for the proposed record attempt, which will take place on Coniston Water here in Cumbria. To show our appreciation for Nigel's presentation, IMechE West Cumbria invested in corporate sponsorship of Quicksilver.

Colin Brown gave an entertaining after-dinner speech on the national resource gap and on women in engineering. He examined how we can encourage more students to consider engineering as a viable career path and how to increase the proportion of women choosing to become engineers.

This was the third annual dinner in succession to be held at the Lakes College West Cumbria and as ever, the quality of the food and service provided by the students at the college was outstanding. It was a pleasure for us to hold our dinner at the college and we were pleased to help in the development and education of the students, whether they strive

to gain employment in engineering or in the hospitality sector.

Tim Chittenden, President of the Nuclear Institute and non-executive director of Sellafield Ltd, was on hand to present student awards for Christopher Mattear - Best Higher National Diploma Engineering Operations and Matthew Fee - Best Higher National Certificate Engineering Operations.

Thanks to the generosity of those attending the annual dinner, the raffle on the night raised over £1100 for three local charities (Cockermouth Mountain Rescue Team, Great North Air Ambulance and West Cumbria Hospice at Home).

IMechE West Cumbria Area would like to thank all of the sponsors of the evening particularly our Gold Sponsors; Doosan Babcock, and our Silver Sponsors; James Walker and Arup. Without continued support from local companies it would not be possible to hold such a fascinating and enjoyable event every year.

Simon Farrell, IMechE West Cumbria



Matthew Fee (right) receiving the award for Best Higher National Certificate Engineering Operations from Tim Chittenden (left).

DIRECTOR'S SUPPORT FOR LOCAL ENGINEERING SKILL BOOSTING



As part of Colin Brown's visit to the area, he and members of the Area Committee took the opportunity to visit several local companies and further education providers to discuss how they are dealing with the national engineering skills shortage.

The Director of Engineering for the IMechE was taken to Iggesund Paperboard on the first day of his tour to understand how Iggesund is trying to recruit and, more importantly, retain skilled engineers to help progress their business.

After an exciting evening at Lakes College, where the 11th IMechE West Cumbria Annual Dinner was held, Colin visited Westlakes Science Park where he was welcomed by employees at Jacobs Engineering Group. While at Jacobs, he met and presented five local students with their Industrial Cadet Silver Awards following their completion of the Jacobs Workplace Experience programme at the company's Nuclear Centre of Excellence.

The Director's West Cumbria tour ended with visits to Lillyhall to tour and admire the GEN2 facilities at Energen. He also visited the adjacent Workington University Technical College, which is helping to form the foundations of Engineering Skills training for the British Energy Coast.

Simon Farrell, IMechE West Cumbria

OVER 400 EMPLOYEES, 200,000 TONNES OF PAPERBOARD PER YEAR

AN INSIGHT INTO IGGUSUND

The West Cumbrian based, Swedish owned, Iggesund Paperboard Workington Limited (IPWL) hosted a group of twenty engineers with varied backgrounds on March 23rd. The evening consisted of an informative presentation including a potted history of the Holmen Group and paperboard making, the inter-relationship between the mill, its energy generation and steam use, and then a walking mill tour.

Founded in 1685, Iggesund is a company with an ingrained sustainability philosophy and, as part of the forest industry group Holmen, it owns more than 1.3 million hectares of forest in Sweden. Iggesund produces its products from virgin fibre from the forest; Invercote and Incada are the brand names of the two products, which are manufactured in two state-of-the-art mills: Iggesunds Bruk in Sweden and the Workington Mill. The Workington mill has an integrated bio-fuelled combined heat and power (CHP) plant, which has helped reduce the net fossil fuel carbon emissions to zero.

The mill in Workington, still fondly known around Cumbria as Thames Board, employs around 400 people and has a capacity of 200,000 tonnes of Incada per year. Incada is a multilayered Folding Box Board (FBB) and the Incada product range are specifically for higher added-value consumer products.

Laura Marshalsea, the company's Tobacco Product Manager, talked the group through the mill's history, operations and future, followed by a walking tour starting with the raw material, wood.

In the UK, Iggesund Forestry is a separate business unit which purchases, harvests and supplies spruce for pulp manufacture at Workington, ideal for making mechanical pulp for FBB in terms of its colour, strength and density.

The timber 'logs' are first debarked, since bark does not contain fibre suitable for pulp manufacture, achieved by friction as logs are tumbled together in a rotating drum. Unfortunately, the group were not able to see the woodyard activities due to the late hour as this part of the plant operates on days out of consideration for neighbouring residents.

The Workington site produces refiner mechanical pulp (RMP), where first the logs are chipped and then forced between the rotating



metal discs of the refining machine. Mechanical fibre separation requires high levels of electric power, and the group got to see the motor, 15MW, which powers the refiner

The fibre suspension in water, at a consistency of around 99% water, is "formed" in several even layers on a moving wire or plastic mesh. The water is drained with vacuum assistance and the layers are brought together in the wet state.

At the end of the wire section and moving at a speed of approximately 400m/min the combined sheet or web is sufficiently consolidated to briefly support its own weight as it is transferred to the press section on an absorbent textile blanket. Here the board is pressed together with blankets between hard rollers and, with vacuum assistance, more water is removed reducing the moisture content to about 60–65%.

The moisture content is further reduced to 5–10% by passing the sheet over steam-heated steel cylinders. The Workington mill includes in their drying section a very large heated cylinder, the Machine Glazing or MG cylinder, with a polished steel surface, the wet paperboard web adheres to the cylinder surface and is progressively dried while at the same time achieving a very smooth board surface. A sophisticated system controls the temperature of the cylinders to ensure that the web is under a controlled tension during the drying process.

A pigmented starch solution is applied to one or both sides, surface sizing, to prepare the paperboard for coating by binding the fibres to the surface, making the paperboard more uniform and dense. It is here that the paperboard's future printing performance is

determined, as well as surface strength, stiffness and smoothness.

The aspect of stiffness was explained in a good amount of detail to the group, as it is the mechanical pulp in the middle three plies which provides Incada with its bending stiffness. The principles of the I-beam, known to mechanical engineers, holds for paperboard in that this central area can have material removed like a castellated I-beam, with the greater stresses and strains being taken by the outer plies of chemical pulp.

The paperboard is nipped between steel rolls to further increase surface smoothness, also controlling the paperboard's thickness and density. Then liquid, white-pigmented coating is applied and smoothed out over the surface with a blade on either one or both sides depending on the product. Each layer is dried independently by infra-red and hot air dryers.

The paperboard web is reeled onto a large steel core, weighing 15–20 tonnes depending on the product. Each finished reel of paperboard is given a unique identification code which allows the product to be traced all the way back to the raw materials.

The questions were frequent throughout the presentation and tour, and Laura was kept on her toes all evening as the group would have been happy to stay and see much more. Hopefully there will be an opportunity to learn more about the woodyard operations and the CHP plant in a future visit. .

Caroline Hamilton,
Project Engineer, Iggesund Paperboard
IMechE West Cumbria

BOARD MACHINE
ONLINE MEASUREMENT



EXPANDING LOCAL KNOWLEDGE

LEARNING FROM EXPERIENCE AT EVAPORATOR D



One of Evaporator D's modules being manipulated into place.

Andrew Ross, Head of Inspection and Certification at Sellafield Limited, gave an open and honest presentation on the 16th April about the quality build challenges that have needed to be overcome during the construction of the multi-million pound Evaporator D Project at Sellafield.

Andrew outlined the issues encountered during

the procurement process, understanding of specifications and control of the supply chain that had to be addressed to ensure the project, which is vital to hazard reduction at Sellafield, is delivered safely.

Highly-active evaporators play a pivotal role in the delivery of reprocessing, historic clean up and hazard reduction missions across the Sellafield site. Evaporator D, a new Highly-Active (HA) Liquid Evaporator, will provide

additional evaporator capacity to support the site's existing evaporators. It is designed to deal with current liquor arisings as well as those with liquors of a higher solid content that are expected to arise from post-operational clean out (POCO) of Sellafield facilities.

Reprocessing involves extracting elements of the fuel assembly that can be recycled and then safely storing the remainder. The highly radioactive fission products make up approximately 3% of spent nuclear fuel and are not useful products. At this stage, the liquor is relatively dilute and in order to minimise the volume to be stored and vitrified into glass form, the liquor is concentrated by a factor of between 40 and 100 by evaporation.

The main issue that has made the construction of Evaporator D a challenging task is the location of the building – it is both adjacent to operational facilities and on a restricted foot print. This has led to innovation such as the modularisation of the plant, enabling fabrication and testing of the majority of the plant equipment off-site.

The Evaporator D building will be made up of 11 primary cells in which will be installed 11 prefabricated modules of varying sizes ranging from 60 to 500 Tonnes. The modules are then linked together and, following testing, connected to the current facility.

David Williamson, IMechE North West Chair

THE NORTH WEST COAST CONNECTIONS PROJECT

On 7th May, Robert Powell, Project Manager for the North West Coast Connections Project with National Grid, one of the successor companies to the Central Electricity Generating Board (CEGB), gave an enlightening talk on the progress with the North West Coast Connection (NWCC) Project, which is the project to upgrade the Electricity North West Ltd (ENW) pylon lines in West Cumbria.

Robert specialises in the operation and maintenance of transmission equipment. This included working on the HVDC cross-channel link from Sellindge, Kent, to Les Mandarins in

France. In 1998 he moved to transmission construction projects, managing 400kV substation projects, including supplying electrified rail networks to the channel tunnel.

National Grid owns and operates the systems that deliver gas and electricity across the entire country; a vital position at the centre of joining up the county's energy supply systems. Robert explained that we need to find ways of meeting the UK's future projected energy needs while also tackling climate change. National Grid is at the heart of this challenge. As old power stations close, we need to join new sources of energy to the national grid so that electricity continues to be available.

These new power sources need to be connected into the transmission network so the electricity they generate can be transported to where it is used. It is their job to decide how and where these new connections are made.

The NWCC Project is being developed because of the need to connect and export the electricity that will be generated by Moorside, the new 3.4 GW nuclear power station that will be built near Sellafield in West Cumbria. There is also a requirement to export the power generated by other new energy projects in the North West.

There are existing Electricity ENW pylon lines which run around the west coast of Cumbria and Lancashire distributing the electricity used by homes and businesses across the region. Operating at 132kV and below, these lines cannot carry the amount of electricity a power station the size of Moorside will generate.

This means that new high voltage

connections from Moorside to our existing national electricity transmission network are needed. The closest places on the network where these circuits can connect are over 50 kilometres (31 miles) away from the Moorside.

After studying the existing electricity transmission network, National Grid engineers established that there was a need to build four 400kV transmission circuits, or two double circuits, to connect Moorside. The four transmission circuits mean that if two have a fault or need to be removed from service, the power station can still operate at full power.

On 4 September 2014, a 12-week public consultation was launched which ran until 28 November 2014. National Grid outlined different route corridors enabling a clearer understanding of the challenges to be faced in building a new connection for Moorside. Based on these findings it was decided to group and prioritise those route corridors to achieve the best balance of technical, socio-economic, environmental and costs considerations. None of the route corridors that were included in the consultation had been ruled out. National Grid asked for comments to help make an informed decision on which route corridors to take forward for more detailed study.

Over the course of the 12-week consultation, 33 events were held and provided briefings for members of approximately 30 different groups and organisations. When the consultation closed, over 1,200 pieces of written feedback had been submitted.

David Williamson, IMechE North West Chair



ASPIRING LOGISTICS GATEWAY OF EUROPE



On Thursday 11th June 2015 the Institution of Mechanical Engineers visited the Port of Workington Cumbria, for a presentation and evening hosted by the port Business and Development Manager, Colin Sharpe.

Workington Port has a deep and interesting history. Over the years this has included supporting industry involved in iron and steel, coal and bulk chemicals. The first dock at Workington first operated in the 1760s exporting coal to Ireland. Rapid expansion leading up to 1927 radicalised the Port and it was renamed the Prince of Wales Dock. The Port was owned by British Steel until 1975 when the decline of heavy industries that it supported led to its closure. Cumbria County Council then took charge, a key turning point which has seen the port grow its business successfully for several years.

The current Port handles around 300,000 tonnes of cargo per annum with about 250 cargo vessel movements. Cargo imports and exports include dry and liquid bulks, forest products and other general cargo. The Port is also utilised by the Solway's offshore wind industry who undertake their operations and maintenance from the site.



The Port's principal cargo handling facilities are centred on the Prince of Wales Dock. This modern enclosed dock has a total water area of 2.6 hectares and quay frontage of 773m providing 7 berths plus a ro-ro facility. The site also offers rail freight services via its main line

connection with all berths being rail-connected and the Port Authority operating its own locomotives.

The scope of cargo handled at Workington includes dry and liquid bulks, break bulks, project/heavy lifts, and general and ro-ro traffic. Examples include chemicals and fuels, cement, wood logs, aggregates, fertilisers, animal feeds, wood pulp, recyclables, offshore and industrial equipment and container freight.

With the economic change going on in the region, there is the opportunity for the further expansion of the port. Colin explained where he saw potential business for the Port to support the handling and storage of bulk materials and ancillaries, stemming from local projects such as Nuclear new build, Nuclear/Oil/Gas and Defence decommissioning programmes, as well as Tidal Lagoon Power.

Workington's Port Authority provides a comprehensive, unified service, encompassing craneage, warehousing, labour operations, pilotage and towage. This means that customers' requirements are dealt with quickly and efficiently with the Port having flexible working arrangements offering customers a tailored service to specific requirements through its excellent range of cargo handling facilities and equipment.

During the tour of the Port facilities, the group were shown around the Main Prince of Wales Dock which has a total water area of 2.6 hectares, a quay frontage of 772.7 metres and 10.2 metres deep. It can accommodate vessels up to 137.2 metres in length and 20.4 metres wide. The dock is serviced by the Main dock "Nelcon" cranes and the impressive Liebherr LHM 280s 85te mobile crane.

The LHM 280s is designed for versatile and efficient cargo handling up to handy-sized vessels: A maximum lifting capacity of 84 tonnes and 40 m max for containers, general cargoes, bulk materials or heavy lifts. The crane can be operated via the cab or more usually through radio remote control, which was impressively demonstrated to the party during the visit, and has telemetry fault diagnosis from any location worldwide.



For the final part of our tour, we were given the opportunity to have a close look at the Solway Challenger, run by North Sea Services on behalf of EON and berthed at the Port. The vessel can carry 12 passengers and 3 crew at a speed of up to 30 knots. The daily duties of the vessel revolve around transferring EON staff to and from the Robin Rigg wind farm in order to carry out maintenance and repairs on the turbines.



Event organiser Simon (left) is pictured thanking Colin for his presentation and tour.

Simon Mandale, IMechE West Cumbria



**BY 2025, THE PORT
WILL BE OPERATING
COMPETITIVELY AS A
STRATEGIC LOGISTICS
GATEWAY FOR
CUMBRIA, IMPROVING
THE PHYSICAL AND
ECONOMIC
DEVELOPMENT OF THE
REGION AND BEYOND**

IMECHE WEST CUMBRIA UPCOMING EVENTS 2015/16

To book your place on any of the events below please visit;
<http://nearyou.imeche.org/near-you/UK/North-Western/West-Cumbria-Area/events>

Don't forget if you have registered your email with us you will be the first to know when future events are available for bookings. For more information, contact the event organiser.

Visit: RAF Spadeadam

24 September 2015, 13:30 (registration from 13:15)

An opportunity to see what goes on at RAF Spadeadam does and the to understand historical importance of the site. Includes a "Windscreen tour" of the site and a visit to site operations room, the nerve centre of activity on station. Photo ID required.

Location: RAF Spadeadam, Gilsland, Brampton, Cumbria. CA8 7AT

Organiser: Ian Lupton (ilupton@yahoo.co.uk)



Talk: United Utilities West Cumbria Water Supply

06 October 2015, 19:00 (registration from 18:30)

A talk outlining why we need a major new pipeline from Thirlmere to West Cumbria, and how the new pipeline plus associated water treatment works, pumping stations and underground service reservoirs will be delivered with minimal environmental impact.

Location: Lakes College West Cumbria, Lillyhall, Workington, CA14 4JN

Organiser: Simon Mandale (simon.mandale@sellafieldsites.com)



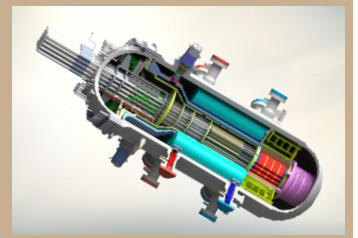
Talk: Small Modular Reactors

12 November 2015, 19:00 (registration from 18:30)

A talk on Small Modular Reactors (SMRs) which are part of a new generation of nuclear power plant designs being developed in several countries. The objective of these SMRs is to provide a flexible, cost-effective energy alternative.

Location: Lakes College West Cumbria, Lillyhall, Workington, CA14 4JN

Organiser: Tom Pritt (tom.pritt@jacobs.com)



Visit: Innovia Films

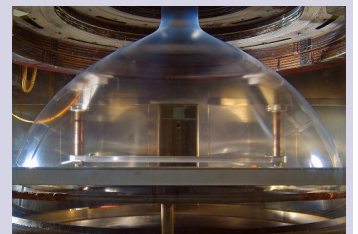
14 January 2016, 18:00 (registration from 17:30)

An opportunity to visit the Innovia Films' Biaxially Oriented Polypropylene (BOPP) plant. Innovia are leading global manufacturer of two 'families' of speciality products supplied into the packaging, labels, overwrap and securities markets and Cellulose based films.

Location: Innovia Films, Wigton, CA7 9BG

Organiser: Caroline Hamilton (caroline.hamilton@iggesund.com)

NOTE: Not suitable for people with limited mobility



Visit: The Biscuit Works, Carr's Tour

16 February 2016, 18:30 (registration from 18:00)

Carr's has been creating scrumptious biscuits and crackers since 1831 and fast became Britain's largest bakery business within fifteen years of operation. Now part of United Biscuits and with nearly two centuries of history, we invite you on a tour of Carlisle facility.

Location: The Biscuit Works, 54 Church St, Carlisle, CA2 5TG

Organiser: Jim Furness (jim_furness@hotmail.com)

NOTE: LIMITED NUMBERS



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