

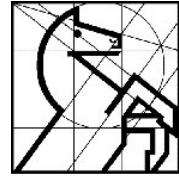
eMech

IMechE West Cumbria e-Newsletter
Edition 7, September 2003

ADRIAN NORENDAL



IMechE Regional
Chairman of the Year 2003



IMECH E
West Cumbria

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EDITORIAL

WELCOME..

... back to all our existing readers & a special welcome for all our new engineering enthusiasts. It is great to be back again with a wonderful programme of [Events](#) plus all the help you need to [Get Chartered](#). And as responsible Engineers, shouldn't we try to put something back into the development of future Engineers by getting involved in the [schools programmes](#) run by SETPoint?

I hope you have all received your Events Programme card, poster and a copy of the very wonderful Professional Engineering Development handbook (modestly edited by myself...) that shows just how much is happening in the North West. Please come along to any of the events and see for yourself – further copies of all publicity material are available at each of our meetings, and please, tell your friends to come along too!

We have already held our opening meeting – a wonderful presentation on the extreme risk management and engineering enterprise involved in [Raising the Kursk](#). We attracted over 100 people to Hundith Hill, and the meeting was also attended by the IMechE Member of the Year, Ashley Kirby, who was very impressed by the enthusiasm and attendance – thank you all!!

The next events will soon be upon us – please make sure you book your place on the visit to [Vordian](#), (Ron Graham – 01900 600261) on October 22nd and make a date in your diary for the prestige lecture on [Quicksilver](#), to be held at Rheged – prior booking through Rheged is essential! (01768 868000 - £6 per person).

Our biggest news, however is that we have our OWN nationally acclaimed **Regional Chairman of the Year** in Adrian Norendal, our 're-founder' and driving force behind the committee for over two years. Adrian was invited to address the Regional Officers Seminar in the hallowed surroundings of Birdcage Walk, where a presentation was made. Adrian has written about his [experience](#) in the big city, at the very centre of IMechE power. (And he has almost become Chartered, too...!!)

Our Own Web Site!

Thanks to sterling work by our own Alon Hankin, we now have our OWN web site – www.imechewestcumbria.org.uk - Please give it a go and check for yourself. All the latest news and any late amendments will be posted there, plus the opportunity to download all the previous **eMechs**.

Also, don't forget the IMechE Official web site - I would strongly encourage you to have go - register on the web site (which will also allow you to pay your subs electronically!), and you will find it has REALLY improved: www.imeche.org.uk

Please also don't forget - feel free to forward **eMech** to anyone else (with their permission!) or get them to drop their [email address to me](#) so we can keep in touch. Also... if you find you do NOT want to be emailed with **eMech**, please email [the Editor](#) with **Unsubscribe** as the subject and we will happily remove you from the mailing list.

I hope to see you all at an IMechE West Cumbria event soon!!

Editor: [Chris George](#), Publicity Officer, IMechE West Cumbria
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Disclaimer: Any mistakes are those of the Editor alone. Under no circumstances is the Chair responsible...

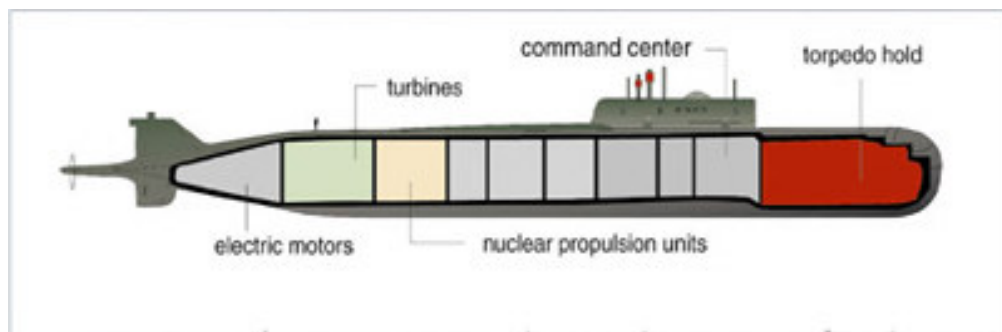
1. RAISING THE KURSK

Extreme Risk Management and Exceptional Engineering Enterprise

An excellent and totally absorbing presentation, robustly delivered by John Large of Large & Associates, Consulting Engineers, provided a wonderful start to the new season of events from IMechE West Cumbria. Jointly organised with the British Nuclear Engineering Society, a packed Hundith Hill audience heard John describe the reasons for the sinking of the submarine, and just how the exceptional hazards were assessed and innovative engineering solutions developed and applied to allow the successful recovery of the gigantic wreck in just seven months from placement of the contract.

The Russian Federation nuclear powered submarine Kursk sank in August 2000 with the loss of all 118 lives on board. In May 2001 the Russian Federation entered into a contract with the Dutch consortium Mammoet-Smit for the recovery of the Kursk on the condition that it had to be completed within that year. The consortium prepared for this World-first salvage of a nuclear powered and conventionally armed submarine that was very substantially damaged lying at 110m in the icy waters of the Barents Sea. Working at breathtaking pace, Mammoet-Smit prepared, lifted and transported the wreckage of the Kursk delivering her to a floating dock at Rosljakovo, about 200km south of the foundering site, in just over six months from the contract date – an astounding achievement, appreciated by many in the audience for whom nuclear programmes are measured in decades, not days..

The catastrophe and the events that occurred after the initial 'pre-cursor' explosion were recorded as seismic disturbances by a Norwegian seismological station. Detailed analysis of these traces indicated that the first explosion was equivalent to 100 – 200kg TNT, and was probably caused by the failure during launch of an experimental torpedo that used a lithium fluoride propulsion system. The activity levels after this explosion suggest that a fierce fire occurred which then led to the catastrophic detonation some 135 seconds later of up to 7 fully armed conventional torpedoes in the forward hold within the space of half a second. This multi-explosion was equivalent to approx 3 tonnes of TNT and ripped out a very large section of the forward pressure hull and outer casing and, at the same time, sent out a reverberating hammer blow through the compartments in the submarine towards the stern.



The statistics of Kursk are impressively daunting – an OSCAR II class submarine, built in 1995, weighing 11,500 tonnes. 154m long, 18m outer casing built from 8mm steel plates plus 11m inner pressure hull formed from 50mm high yield steel plate. The entire outer hull was clad in 80mm rubber tiles (using asbestos-based adhesive!) to deaden sound transmission outwards and to absorb incoming sonar pulses – a form of stealth technology. 24 cruise missiles plus up to 24 torpedoes were being carried, which, together with the condition of the nuclear power reactors, formed the basis for the nuclear risk assessment.

The task that faced the recovery team was considerable, the most urgent being how to assess the condition and risks that could jeopardize a successful lift. John was asked to head and form a Nuclear Co-ordinating Group that would assess the principle nuclear hazards and define the limits and conditions under which the lift and recovery would take place. A team of 15 were (reluctantly) supported by Russian technicians and key personnel from RUBIN, the State Design Agency that designed Kursk. John described how the NCG held a trump card that effectively controlled the sometimes buccaneering approach of the salvage teams – insurance cover was only granted if work was done in accordance with the terms laid down by the NCG!

Using information gathered from incredibly brave diving teams, remote cameras and sensors, the wreck and debris fields were assessed and the principal hazards identified as from the torpedoes, cruise missiles and from the nuclear reactors. In addition, the activities in raising the vessel by cutting off the severely damaged front section, drilling 26 anchor points through both hulls and attaching lift wires, also had to be considered to ensure that reasonable safeguards were in place.

The method of assessment – identifying hazards, possible faults and consequences – was distinctly different the Russian approach, which tended to passively consider one event in isolation. The NCG approach considered torpedo explosion a credible risk during operations and established the criteria for vessel and human deployment that would minimize any consequences.

There was major concern at whether the reactors had successfully closed down and ceased radio-active function, and if they had survived the massive detonation that sunk the submarine. The absence of any radio-active contamination and the lack of any thermal gradients suggested that shut-down had been fully achieved, but there was a worrying gas bubble evident within the reactor compartment which could certainly have exploded during lift due to decompression. Examination of the skeletal remains from one of the officers who would have been in the control room next to the reactors at the time of the main explosion indicated that a shock load of up to 60g had been experienced – could the reactors and the mounting systems have successfully accommodated this loading? Design data eventually obtained from the Russians suggested a design capability of up to 50g...

John showed some excellent PowerPoint animations to demonstrate the lifting methods and the heave compensation systems that were used to ensure even tensions were maintained in the huge lift wires at all times. Whilst the lifting equipment principles were tried and tested, they had never before been deployed and co-ordinated on such scale, and the cutting operation that sawed off the forward compartment was a world first – a heavy cable carrying very coarse (~25mm) abrasive was deployed and reciprocating motion supplied by two 30 tonne hydraulic rams attached by suction anchors to the sea bed. Like some gigantic cheese cutter, the wire was drawn back and forth over the hull, eventually slicing through the thick steel structure. This system is now being used to cut the car-carrying ship that sank in the Channel.

The lift went surprisingly well, with no significant suction effect of the Kursk on the sea bed. Once lifted by the massive Giant 4 lift barge, Kursk was tethered underneath into a specially made cradle to begin the long journey back to land. To get both vessels into dry dock, additional pontoons had to be devised and built to lift the pair prior to Kursk being lowered into her new home..

The recovery of Kursk was a success that derived from a tragedy, completed by a group of commercial organizations. Quite remarkable levels of ingenuity were shown to meet the politically imposed timescale. The Nuclear Co-ordinating Group had to work rapidly, crossing the divide between East and West, accounting not just for the different approaches to nuclear and engineering technologies, but also how the safety reasoning of the original design could be integrated into the salvage scheme. There was no radiological release or significant radiological hazard to any of the personnel involved, and for that a great deal of thanks must go to the work of the Group headed by the redoubtable John Large.

A fascinating presentation, only slightly marred by the low positioning of the projector screen.



Dave Norton, BNES (left) and Ron Graham, IMechE West Cumbria Chairman (right) present John Large with a memento of an excellent presentation in Cumbria – yes, it's another Pit Tankie!

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2. GET CHARTERED...!!!

IMechE Regional Manager & CV Workshop will get you going!

We have a lot of members. We have very few Chartered members. Why is that? Low career aspirations or just lethargy? The facts are clear – Chartered members can go further and higher in any organisation. Not everyone has the luxury of a BNFL-type career development programme, but that doesn't mean you need just sit there as an Affiliate or Associate member.

But it can be confusing – the rules and regs seem to constantly change about accredited qualifications and courses, and then how do you build up a professional record to submit for scrutiny to face the professional interview? Who could be your mentor if you work for a small company? What about the new 'super-Institution'?

All these questions and more will be easily and simply answered by our enthusiastic IMechE Regional Manager, Stephen Gasser, at our next meeting on October 8th. It's to be held at the Kirkgate Centre, Kirkgate, Cockermouth and starts at 7pm.

There is also a **BONUS** – Roevin, the engineering recruitment company, will be on hand to run a CV Workshop, and give you top tips on how best to present yourself. Make sure you bring your own CV along and get a helping hand to a better future!

Professional Help is at hand – make use of it NOW!!

GET CHARTERED – You know it makes sense!

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3. REGIONAL OFFICERS SEMINAR

IMechE HQ, Birdcage Walk 5/6/03

Our very own Adrian Norendal, Regional Chairman of the Year, writes:

In June this year I was invited by the Regional and International Operations department to lead a discussion on the "Role of the Chairman" at the Regional Officers Seminar at Birdcage Walk in London. Here, all the regional officers are invited to take part and share their experiences and knowledge with other officers from around the country.

The aim of the seminar was as follows :

- For members to meet and network with other regional officers, ILOs and ALOs, exchange ideas, discuss common problems and share solutions.
- Carry out role more effectively and inform the members of the support and resources available from HQ.
- Meet key IMechE staff members.
- Give members an insight into what the future holds for the Institution.

The day kicked off with Isobel Pollock, Chairperson, Committee of Regional Chairmen(CRC) giving a brief introduction to the days events followed by the Robert Howard-Jones, Director, Finance & Administration giving an animated and entertaining run down on an otherwise uninteresting and these days, frankly depressing financial standing of the IMechE financial condition. Following this Sandra Mulligan, Regional Manager gave an overview of the roles and responsibilities of the Regional Managers and the way in which they are going to change the world next year.

The Role of the Chairman Seminar

The session began by examining why individuals become involved in voluntary organisations and activities such as the Area Committees, to detailing the officer's responsibilities. It also detailed the basic requirements of getting started by creating a vision statement and objectives for the area committee. It also covered the manner by which the utilisation of volunteer's abilities can benefit the area and ultimately the IMechE. These strengths can vary from individuals who naturally fall into additional roles of press secretary, programme co-ordinator, poster designer, web site co-ordinators, fund raisers, marketer, publicity officer etc and can contribute positively to the future of the IMechE in respective areas. These are all voluntary positions but the individuals gain valuable experience, which support their day-to-day activities and can contribute to their professional standing.

One of the most valuable sessions I have experienced with the committee and one, which I would personally recommend, was a workshop facilitated by a Project Manager familiar with management and team building techniques. A new or existing committee can come on leaps and bounds if the workshop is undertaken effectively. I would therefore personally recommend this as an annual event both to refresh existing members and welcome new members into the fold.

In conclusion it was recommended that the chairman at all times have to act professionally and friendly but never distant and aloof.

The Way Ahead

Following lunch Chris Kirby, Manager, Professional & Technical Support gave an introduction to The Way Ahead (endorsed by the Trustee Board) to include Incorporate Engineers as Corporate Members of the IMechE and the status of the so-called Super Institution.

This was followed by Nigel Southwood, Director, Information Services on the progress the IS department were making with the IMechE Website and associated IS activities.

Masai Master Class by Chris Howe

Chris Howe rounded off the day with a fascinating lecture giving an insight into the workings of the Masai Tribes in the Kenyan bush and how they manage to survive in one of the most inhospitable places on earth. After believing for years that business was fundamentally simple and was only made complicated by human beings, ego and fear, he was presented with a stark demonstration that this might well be the case when he and a colleague got lost in the Kenyan bush and spent a week living with the Masai community. He learnt more in five days about Organisational Culture and Behaviour than he has in 15 years of study, research and sitting at the feet of the gurus of the modern world.

This was one of the most entertaining and education presentations I have had the pleasure of attending, made even more interesting by Chris's insight into the Organisational Culture and Behaviour of a race not previously recognised for their management acumen.

In Closing

During my visit I was also kindly shown around Birdcage Walk. What an impressive place it is, with its numerous boardroom and library facilities not to mention lecture theatres, and the corridors of history with pictures of past Presidents on the walls. As I left the building I was incredibly impressed by our location, looking straight ahead we virtually face Horseguards Parade and



Adrian wows them with his unique style

looking left you can virtually touch Buckingham Palace in all its glory. Yes it is clearly an impressive place with its high ceilings and ornate surroundings but in saying this, how many members have ever visited the place or ever will unless on some hadj. This said, the IMechE is not just a building in London, it is a concept which originated 150 years ago and one that has had to adapt and keep pace with the times guided by a series of presidents keeping the concept alive.

In conclusion I want to leave you with this thought: If Stephenson could see the IMechE today, would he recognise it and more importantly would he approve ?

Adrian Norendal AMIMechE
Immediate Past Chairman - West Cumbria Area
IMechE Regional Chairman of the Year 2003

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4. SCHOOLS – What Can YOU Do????

Help Us To Help The Future of Engineering

The future of engineering and of raising the regard in which society holds engineers depends on the quality and drive of the new generation. As responsible engineers, we must all ask if we are doing enough to help stimulate and enthuse the young students of today to take up this challenge.

Ron Graham, Chairman, is committed to stimulating and promoting all means of providing help and encouragement through the many engineering programmes, clubs and competitions that are available for the schools in our area.

Our Academic Liaison Officer, George Williams, has written to every school in the area to introduce our programme of events, which is open to all, and also to make sure they are aware that there are a number of accredited Science & Engineering Ambassadors in our ranks – Ambassadors need to be vetted to work with schools, a sad but necessary process these days.

What about YOU??? How can you get involved?? Do you have children at school? Do they know we can help? Please help us help them – if you want more details, contact [George Williams](#) or [Alastair Billson](#). Thanks!

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5. ILO, ILO, ILO...

Another Seminar to develop the Industrial Liaison Officer networking in Cumbria

Following the earlier two seminars held at BNFL, the 'early' Learning Centre at Iggesund Paperboard is to host the third gathering on Tuesday, November 18th starting at noon. Our energetic Regional Manager, Stephen Gasser will once again be on hand to advise the latest developments within the IMechE and also to ensure that 'best practice' is shared between those larger organisations that benefit from the appointment of an ILO.

ILOs form important points of contact within larger organisations, to act as guides and sources of information for all aspects of the IMechE. A full information pack is available for anyone who would like to volunteer to take on the role – it's something of an IMechE 'ambassador'.

If you are interested, or not sure whether your company has an ILO, then contact our ILO Liaison co-ordinator, [Ron Nixon](#), who can advise you.

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IMechE West Cumbria Area – 2003/2004 Calendar

September 2003	October 2003	November 2003	December 2003
	Committee Meeting Date : 08/10/03 Start Time : 20:30 hrs Venue : Kirkgate Centre Refreshments : Possibly	Committee Meeting Date : 04/11/03 Start Time : 19:00 Venue : The Lakes College, Workington Refreshments : Yes	Committee Meeting Date : Wed 10/12/03 Start Time : 19:30 hrs Venue : The Traveller's Rest, Workington. Refreshments :
	Programmed Events Get Chartered by Steven Gasser Date: Wed 08/10/03 Time : 19:00 hrs Venue: Kirkgate Centre, Cockermouth Numbers : Unlimited Reservations Required : No Refreshments : Yes Organiser: Adrian Norendal Tel : 019467 75700 Visit to Vordian Date: Weds 22/10/03 Time : 18:00 hrs Venue: Vordian, Siddick Numbers : 30 Reservations Required : Yes Refreshments : Yes Organiser: Ron Graham Tel : 01900 600261	Programmed Events Quicksilver !! Water Speed Record Attempt Date: Wed 12/11/03 Time : 19:00 hrs Venue: Rheged Centre, Penrith Numbers : 150 Cost : £6 per head Reservations Required : Yes Refreshments : Cafe Organiser: Adrian Norendal Tel : 019467 75700 BOOK DIRECTLY WITH RHEGED: 017688 68000 A prestige lecture – make sure you see it!	Programmed Events Cumbria Waste Minimisation Project Date: Wed 10/12/03 Time : 19:30 hrs Venue: The Grove Court, Cleator Numbers : 40 Reservations Required : No Refreshments : Yes Organiser: Alastair Billson Tel : 019467 86731
January 2004	February 2004	March 2004	April 2004
Committee Meeting Date : Wed 07/01/04 Start Time : 19:30 hrs Venue : The Swan Hotel, Cockermouth Refreshments : Yes	Committee Meeting Date : Wed 04/02/04 Start Time : 19:00 hrs Venue : Iggesund Paperboard Learning Centre Refreshments : Yes	Committee Meeting Date : Wed 03/03/04 Start Time : 19:00 Venue : The Lakes College, Workington Refreshments : Yes	Committee Meeting Date : Wed 07/04/04 Start Time : 19:30 hrs Venue : The Traveller's Rest, Workington. Refreshments :
Programmed Events In The Blink Of An Eye - Gateshead Millennium Bridge Date: Wed 14/1/04 Time : 19:30 hrs Venue: The Barn, Rosehill Theatre Numbers : 60 Reservations Required : No Refreshments : Yes Organiser: Mike Edie Tel : 019467 84304	Programmed Events Genesis of a Queen: Queen Mary II + AGM Date: Wed 18/02/04 Time : 19:30 hrs Venue: Carlisle College Numbers : 100 Reservations Required : Yes Refreshments : Cafe Organiser: Alon Hankin Tel : 01900 827578	Programmed Events Visit to Corus Engineering Date: Wed 17/03/04 Time : 19:30 hrs Venue: Corus Engineering, Workington Numbers : TBA Reservations Required Yes Refreshments : Yes Organiser: Ron Graham Tel : 01900 600261	Programmed Events Visit to Nissan Date: Fri 23/04/04 Time : 14:00 hrs – Coach leaves Venue: Nissan, Sunderland Numbers : 50 Cost : £10 per head Reservations Required : Yes Refreshments : Yes Organiser: Adrian Norendal Tel : 019467 75700
May 2004	June 2004	July 2004	August 2004
Committee Meeting Date : Wed 05/05/04 Venue : The Swan Hotel, Cockermouth Refreshments : Yes	Committee Meeting Date : Wed 09/06/04 Venue : Iggesund Paperboard Learning Centre Refreshments : Yes	Committee Meeting Date : N/A Time : N/A Venue : N/A	Committee Meeting Date : N/A Time : N/A Venue : N/A
Programmed Events Visit to Carrs Mill Date: Wed 12/05/04 Time : 19:30 hrs Venue: Carrs Mill, Silloth Numbers : 25 Reservations Required : Yes Refreshments : Yes Organiser: David Williamson Tel : 019467 76214			

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CONTACTS

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