



Fusion Business

tomorrow's technology for today

UKAEA FUSION & INDUSTRY ITER WORKSHOP

More than 70 companies attended the UKAEA Fusion and Industry team's first briefing for UK industry on ITER. The day long workshop, in October, gave delegates a valuable insight into the technical and engineering challenges and business opportunities arising from the construction of the world's largest fusion experiment, at a cost of €4 billion.



ITER is an internationally funded project which continues the research work carried out at the Culham Science Centre on the JET machine, but on a far larger scale. Potential sites are currently being considered in Canada, France, Spain and Japan. With the decision on whether and where to build ITER expected within a year, Fusion and Industry decided to bring together the ITER Director and senior ITER project managers to brief UK companies.

Fusion and Industry Manager, Dr Cleve Forty, says: "The engineering demands of the ITER construction and operation will surpass in size and cost the EURATOM-funded JET machine we have at Culham,

which is currently the world's largest fusion experiment. Our task is to ensure that UK industry is able to compete effectively for its share of the project."

Involving UK industry in Fusion research at Culham has been a key factor in ensuring it is in shape to compete for ITER business. Indeed many of ITER's design challenges, such as precision welding of the main vacuum vessel and operational elements including plasma diagnostics, are being researched here in the UK.

To help promote UK industry involvement with ITER, a new Fusion Supplier Directory is being developed. See inside for details.

DR. DEREK ROBINSON FRS



Many tributes have been paid to Dr. Derek Robinson, Head of the UKAEA Fusion programme at Culham, and a prime mover in the European and international fusion research community, who died on 2 December 2002 in Oxford, at the age of 61.

Derek Robinson gained his PhD at Manchester University and after work in Fusion at Harwell, started work at Culham Laboratory, the UK centre for fusion research, in 1970, becoming Director in 1996. He was elected a Fellow of the Royal Society in 1994 and, at the time of his death, was a Vice President of the UK Institute of Physics and Chairman of its Board of Publications. His 40-year career in fusion research included work in Russia, China and Japan. He was one of the driving forces behind the successful spherical tokamak approach to fusion pioneered at Culham, and a senior member of international committees for JET and ITER.

ITER WORKSHOP *continued*

ITER Director Robert Aymar briefed the audience on the current project status. The design work on ITER has already been completed and the ITER organisational arrangements are currently being negotiated.

"ITER will take a decade to build and will operate for twenty years. Some components, by the nature of their size and fundamental role in the operation of ITER, such as the vacuum vessel and magnets, will need to be ordered the minute ITER receives the go ahead," said Robert Aymar.



So far 85 procurement packages have been identified covering key elements of ITER. Some of these, such as plasma diagnostics, will not be needed until towards the end of the main ITER construction phase.

UK INDUSTRY EXHIBITORS

During the day, there were also presentations on the ITER components and technologies by the ITER project managers, including:

- magnets, cryogenic systems and magnet power supplies
- heating and current drive, diagnostics and control
- tritium systems, buildings miscellaneous plant and civil engineering
- in-vessel components and materials assessment
- remote handling, hot cells and decommissioning.

Many companies attending the ITER briefing took the opportunity to take part in an exhibition running alongside the presentations. "Many of the ITER contracts will involve multiple companies working together. It makes sense for them to network in this way and hopefully identify potential partners for future projects," commented Deniese Willis, Fusion and Industry Events Co-ordinator.

To keep companies up-to-date on **ITER** developments, Fusion Business and the Fusion and Industry website, at www.fusion.org.uk/industry, will feature reports on site selection and details of invitations to tender as well as links to **ITER**-relevant web sites.

"A GREATER ROLE FOR INDUSTRY"

"ITER construction will be characterised by the awarding of very large complex contracts, some worth over €100 million, but smaller conventional contracts will also be awarded, particularly involving SMEs. We believe industry has a far greater role to play in ITER construction than earlier projects and are delighted to see there is such interest from UK companies."

Jean-Pierre Rager, Head of Unit, "Joint Development of Fusion" at the European Commission

The workshop ended with a presentation on the business opportunities arising from another high technology project, the Diamond Light Source (DLS) synchrotron in Oxfordshire. Robert Freeman, Procurement Manager, at DLS – responsible for constructing and managing the synchrotron - gave an insight into the project's technology requirements and forthcoming subcontracting opportunities. For further details on DLS visit www.diamond.ac.uk.

FUSION SUPPLIER DIRECTORY



As a follow-up to the ITER briefing, Fusion and Industry is asking all companies interested in providing products and services to the ITER project, and other fusion projects, to complete company profiles. These will be combined to provide ITER procurement staff and other fusion association laboratories with a directory of UK suppliers.

A sample of a company directory sheet is available by email from deniese.willis@ukaea.org.uk. "It's difficult to over emphasise the importance of these profiles," says Dr Cleve Forty. "We want to make it as easy as possible for our UK and European colleagues to identify and contact UK companies when sourcing technology and services for fusion projects." The directory is due for completion later this year.

REMOTE HANDLING EXPERTISE WINS COMPANY JET CONTRACT

Remote handling specialist, Oxford Technologies Ltd, has been awarded a contract by UKAEA, to supply remote handling development services for the JET Operation Contract at the Culham Science Centre.

Based at Culham Innovation Centre, Oxford Technologies Ltd is dedicated to facilitating the spin-off of expertise from the European Fusion programme through products and services for remote handling applications in hostile environments.

Oxford Technologies Ltd was chosen because of the unique and extensive experience of its staff in this specialised area. Its personnel have developed the equipment, remote operations methods and experience that come from successfully implementing three major remote handling shutdowns at JET since 1998.



A remote handling arm inside the JET torus.

The JET remote handling systems are now being prepared for use in the next major shutdown planned for 2004, when, during a nine month period, more than 70 different types of task will be performed completely remotely inside the JET machine's torus.

Oxford Technologies Ltd is led by Managing Director Alan Rolfe: "Our expertise lies in the manipulation of objects in hostile environments where a high degree of dexterity and care is needed. Currently we are involved with a number of

projects related to the nuclear

industry, including fusion research as well as a high energy physics experiment and plant decommissioning."

Contact **Alan Rolfe** on **01865 408313** or by email to **alan.rolfe@oxfordtechnologies.co.uk**.

BNES AND NASA LEARN FROM CULHAM SCIENCE CENTRE VISITS



Ian Andrews, Secretary of the British Nuclear Energy Society (BNES), has visited the Culham Science Centre to meet the Fusion and Industry team. BNES is committed

to on-going professional development of engineers working in the nuclear industry.

Touring the MAST and JET facilities at Culham, Ian Andrews said: "Many of our members are involved in the fission side of the nuclear industry. However we feel it is important that they are kept informed about developments in fusion research, and news of technology transfer which could be applied to the nuclear industry as a whole."

Your view: Are there topics you would like to see covered in Fusion Business; do you have comments on this edition? If so, please contact **Deniese Willis** on **01235 466608** or email **deniese.willis@ukaea.org.uk**

When NASA had the opportunity to set up a new business incubator at its Ames laboratory, it wanted to learn from the experience of other national Government research laboratories. The DTI's International Technology Promoter in the United States, Cliff Young, took the opportunity to invite Carolina Blake, Head of the Commercial Technology Office at NASA's Ames laboratory to visit the Culham Science Centre and the Rutherford Appleton Laboratory.

Speaking after meeting the Fusion and Industry team and visiting a number of companies at Culham, including the Innovation Centre, Carolina Blake (right) said: "The approach taken by Fusion to encourage innovation and technology transfer through the Technical Support Package, is one that has much to recommend it and will help shape our thinking when we establish our own incubator."



MINISTER MEETS INNOVATORS



Lord Sainsbury of Turville, Parliamentary Under Secretary of State for Science (pictured 3rd from left) visited Culham to see the UKAEA and JET facilities and to be briefed on current developments in fusion research, including the status of planning for the next fusion facility, the international ITER project.

He had an opportunity to meet start-up companies in the Innovation Centre and witness at first hand the benefits of Fusion's Technical Support Package when he met Dr Christian Bradley of Oxford Scientific Ltd. Dr Bradley (second right) is manufacturing an innovative new microwave plasma source. A recipient of a SMART award in 2002, Oxford Scientific has used the technical support package to draw on Fusion's expertise in precision engineering in developing the plasma source.

'TECHNOLOGY 2003' VENUES

A range of new and pioneering engineering technologies from more than 100 exhibitors in areas relating to fusion, nuclear waste management, decommissioning and the defence market, will feature in the annual 'Technology 2003' series of exhibitions. The exhibitions – at nine venues – will be of particular interest to those in design & development, maintenance, operations, fusion, decommissioning, waste management, process control and procurement.

2003 Diary dates:

March: BNFL Risley (26th)

April: BAE Systems Warton, Preston (9th)
AWE Aldermaston (15th)
MOD Abbeywood (16th)
BNFL Sellafield (29th)

May: UKAEA Culham (8th)
UKAEA Dounreay (22nd).

If your company would like to exhibit at any of these venues please call **Nu-Tech Associates Ltd** on **01946 695554** or e-mail: sales@nu-techassoc.co.uk

FROM RUSSIA WITH....

The fast growing, privately-owned anti-virus software company, Kaspersky Labs, has opened sales and support offices at the Culham Innovation Centre. The Moscow-based company, which has won numerous international security awards for its anti-virus software and security products, chose the Innovation Centre for its central England location and access to the Thames Valley corridor.

Marketing Manager, Sarah Buttery, says: "We also liked the fact that the Culham Science Centre has an international reputation for technology that reflects our own commitment to developing leading edge security products. Moreover, the site is secure and the facilities in the Innovation Centre are excellent."

Culham Innovation Centre has a new administrator handling its day-to-day running. Kerry Bridges is working alongside centre manager Barbara Allsworth. Anyone wishing to visit the Innovation Centre should contact Kerry on 01865 408300.

CHAMPIONS ON THE LOOK OUT



Champions: from l to r (back) Mike Loughlin, Paul Bennett, Mike Walsh, Nick Hawkes, Stephen Shaw; (front); Garry Voss, Julian Hawes, Anthony Webster, Miriam Mason, Jon Farthing

Nine volunteers have agreed to champion Culham's Fusion and Industry programme and help identify fusion spin-off opportunities. They're looking for bright ideas with business potential which may qualify for seed corn funding from the £4m Rainbow Seed Fund, set up to encourage commercialisation of research and innovation. For more details call Industry Liaison Co-ordinator **Miriam Mason** on **01235 466609** or visit: www.fusion.org.uk/industry or www.rainbowseedfund.com

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