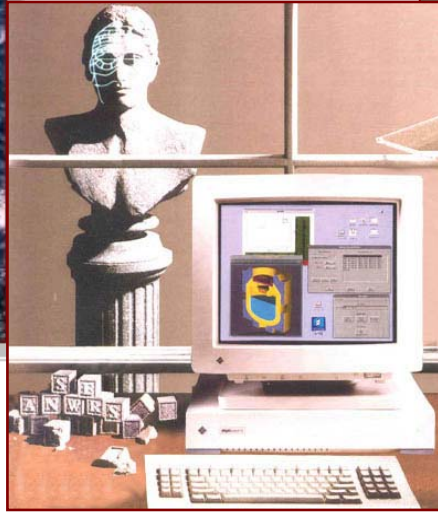


Bringing service to life

serco



An Overview of Serco Assurance

Presentation to
NPL IRMF

Presented by
Ludovic Chevallereau / Serco Assurance

17th May 2006

Serco Assurance: our history

we grew out of the nuclear industry:

UKAEA	AEA Technology	AEA Technology plc	Serco Assurance
1954-1990	1990-1996	1996-2001	2001 -
AERE Harwell SRD & EIG Risley AEE Winfrith	commercial business units safety & reliability reactor services	flotation 1996 consulting business range of customers strong customer focus	transfer 2001 safety environment plant performance structural integrity software engineering training

Serco Assurance: our resources

- Over 400 technical staff, the majority qualified to first degree or higher, giving us a wide range of specialist capability
- Offices at:
 - Dounreay, Caithness
 - Greengarth, Cumbria
 - Berkeley, Gloucestershire
 - Risley, Cheshire [HQ]
 - Culham, Oxfordshire
 - Harwell, Oxfordshire
 - Winfrith, Dorset
 - Derby, East Midlands
- Staff also based at several client locations



Serco Assurance: our business

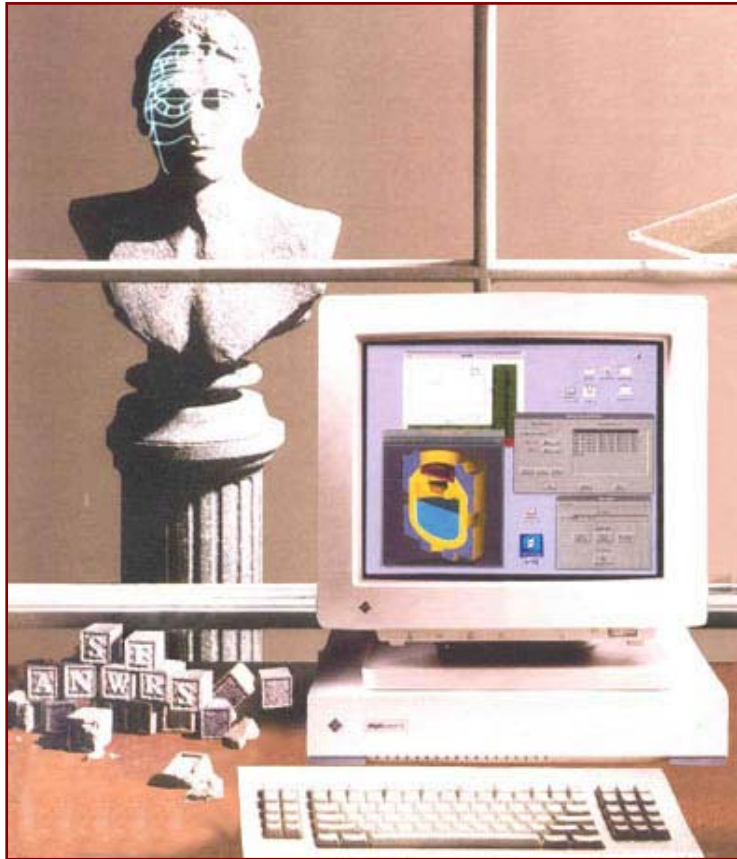
- safety management
- environmental management
- plant integrity management
- nuclear plant performance
- technical software solutions
- transport solutions
- strategic asset solutions
- training solutions



Safety management: our expertise

- safety documentation production and audit
- risk management
- independent safety assessment (ISA)
- emergency response management
- electronic safety case
- accident and incident investigation
- independent peer review
- probabilistic safety assessment
- human factors and human reliability assessment
- fire safety
- criticality and shielding
- radiological protection
- compliance management system (*Assure™*)

The ANSWERS software suite

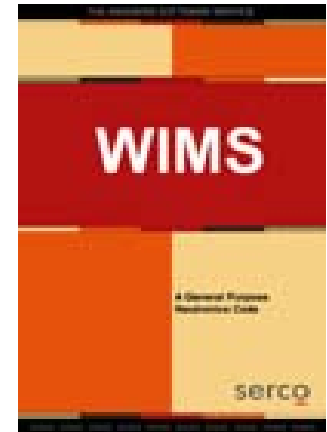


ANSWERS offers a range of services and products in the areas of:

- Reactor Physics and Nuclide Inventory
- Radiation Shielding and Dosimetry
- Nuclear Criticality Safety
- Heat Transfer, Stress Analysis and Fluid Flow

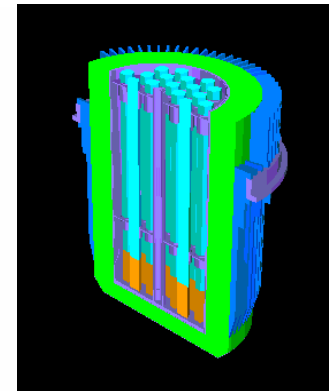
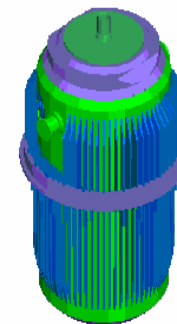
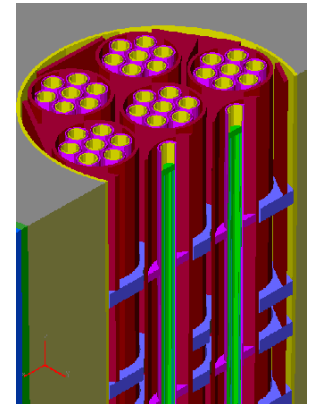
Reactor Physics and Nuclide Inventory

- **WIMS – Reactor Physics** – modular reactor physics software package ranging from simple pin-cell reactivity calculations to whole core estimates of power flux distributions. All thermal reactor types can be analysed. Predefined calculation routes and customised methods of solution.
- **PANTHER – Reactor Physics** – leading neutron diffusion and thermal hydraulics code for the analysis of any thermal reactor core. All types of reactor calculation, fuel management, safety transient analysis and on-line operational support, using fully consistent models with reference accuracy.



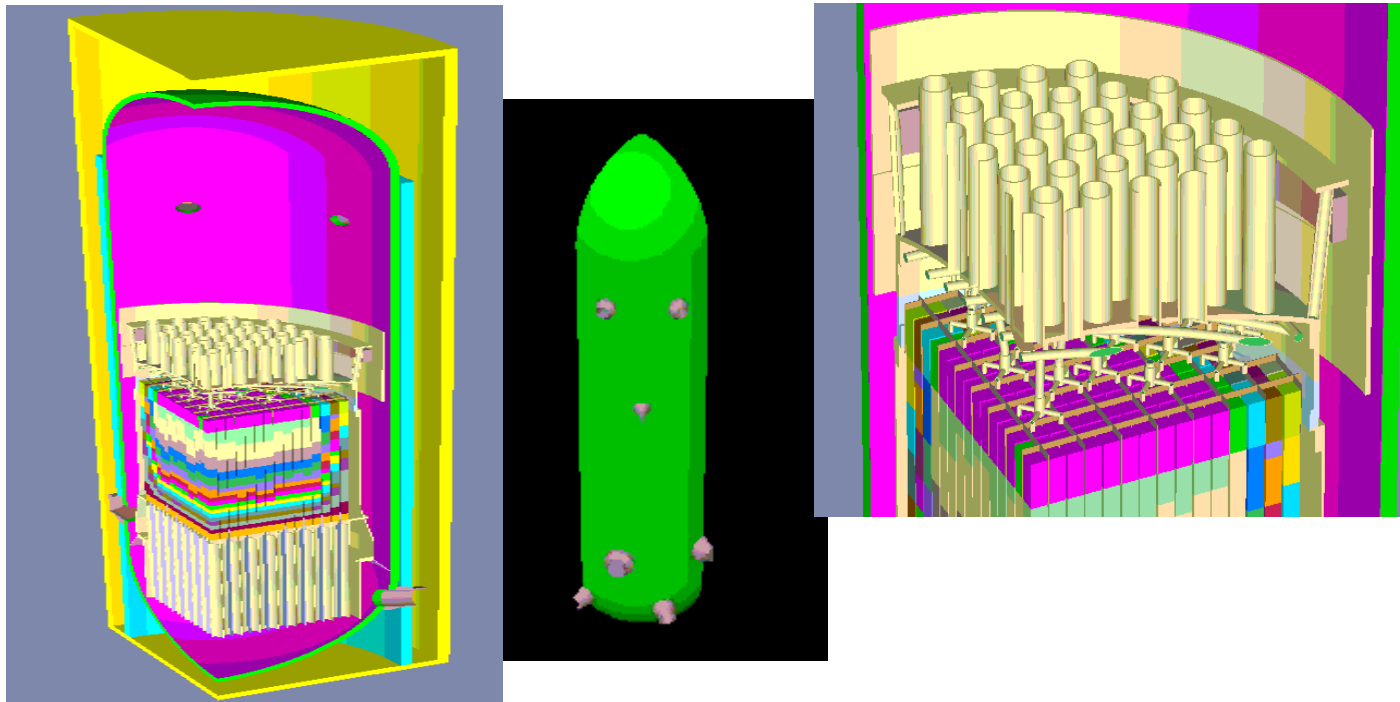
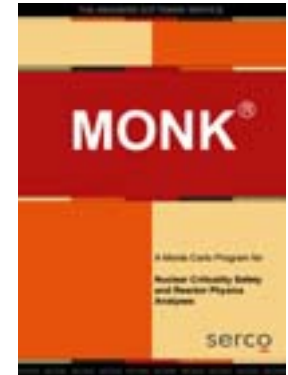
Radiation Shielding and Dosimetry

- **MCBEND – Radiation Shielding and Dosimetry**
– a Monte Carlo package for radiation transport problems. Advanced geometry modelling with detailed neutron collision treatment; can also deal with photon and electron transport. Provides automatic acceleration techniques and comprehensive radiation source options.
- **RANKERN – Radiation Shielding and Dosimetry**
– point kernel package for assessment of complex gamma-ray shielding. Rapid calculation allows full exploration of design variations; powerful geometry modelling capability.
- **FISPIN – Nuclide Inventory** – calculates the changes in the numbers of atoms of the nuclides of various species, as a nuclear fuel is subjected to periods of irradiation and cooling.



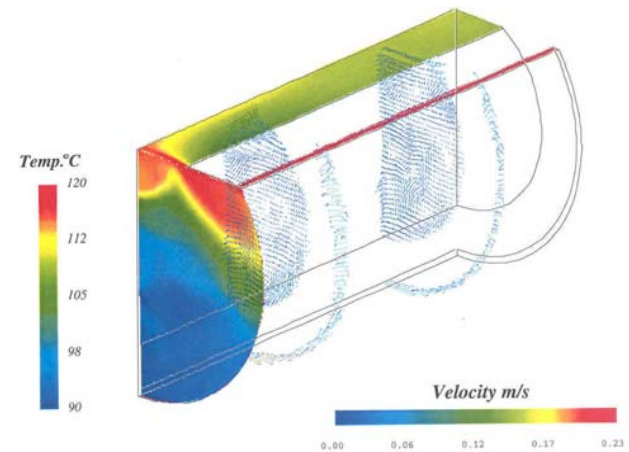
Nuclear Criticality Safety

- **MONK – Nuclear criticality Safety** – a powerful Monte Carlo tool: advanced geometry modelling and detailed energy collision treatment provide realistic 3D models for accurate simulation of neutronic behaviour. Supported by extensive experimental comparison data.



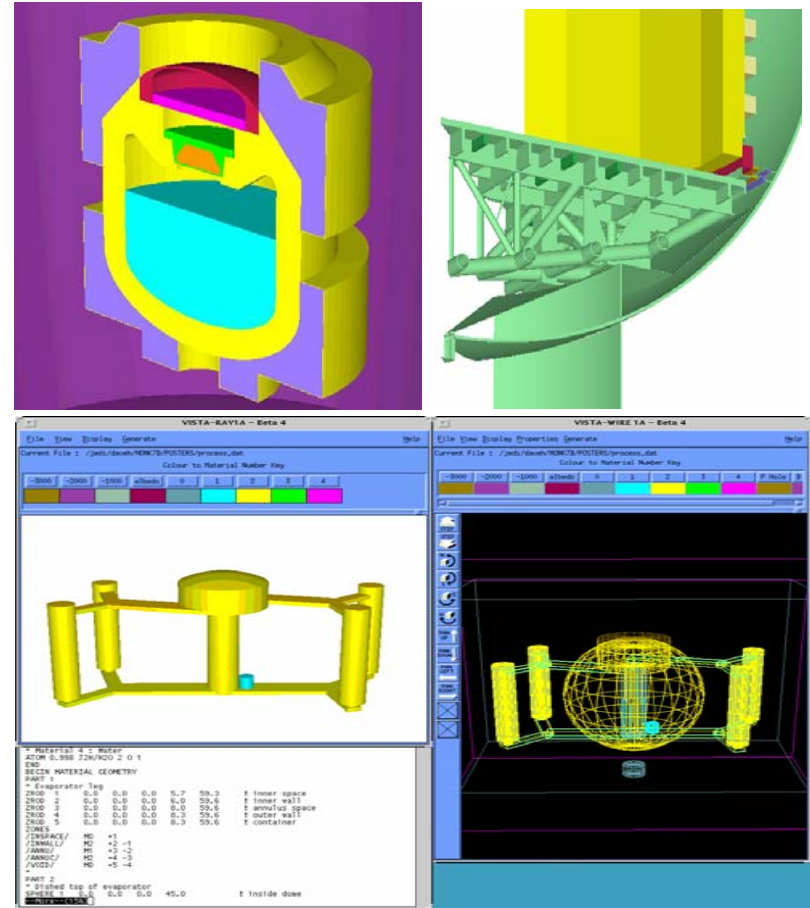
Heat Transfer, Stress Analysis and Fluid Flow

- **FEAT – Heat Transfer, Stress Analysis and Fluid Flow** – fluid, heat Transfer and structural equations are solved concurrently, avoiding the need to transfer data between separate effects codes.



Graphics Software

- VISAGE, an interactive geometry checker for use with MCBEND, RANKERN and MONK geometry descriptions.
- VISTA, an interactive visualisation tool which produces perspective wire frame and rendered solid 3D geometry pictures of MCBEND, RANKERN and MONK models.
- CACTUSEdit, an interactive geometry builder and checker for WIMS



Serco Assurance: contact details

Chris Theobald

Serco Assurance
Thomson House
Risley
Warrington
Cheshire
WA3 6GA

T: 01925 252525

Ian Graham

Serco Assurance
Building 150
Harwell IBC
Didcot
Oxfordshire
OX11 0RA

T: 01635 280300

Ian Curl

Serco Assurance
Building A32
Winfrith Tech Ctr
Winfrith
Dorset
DT2 8DH

T: 01305 851148

Leigh Wakefield

Serco Assurance
Walton House
Risley
Warrington
Cheshire
WA3 6GA

T: 01925 252525

www.serco.com/assurance
enquiries@sercoassurance.com