RISKworld

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In This Issue

Welcome to Issue 10 of RISKworld. If you would like additional copies, please contact us, and feel free to pass on RISKworld to other people in your organisation. We would also be pleased to hear any suggestions you may have on what you would like to see in future issues.

Contact Steve Lewis

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Risktec

"Houston … we have a solution"

Downtown Houston. Risktec's new office near NASA is our 7th office world-wide

This 10th edition of RISKworld marks five years of trading for Risktec. During this time Risktec personnel have worked hard to establish the company and develop our range of services to meet current and anticipated market needs. As the company grows in size and complexity we will maintain our clear focus on the delivery of high quality risk and safety solutions to our growing client base. With the recent opening of our Houston office, Risktec now operates from 7 strategic locations and services clients in some 40 countries. This edition also sees our Glasgow team moving to larger premises.

Over the past five years Risktec has provided services to over 170 clients and we are extremely pleased at the level of repeat business from our client base. In keeping with our commitment to quality, we undertook our annual independent customer satisfaction survey. We are delighted to have received a 'Gold Star' based on the feedback provided from a sample of 20 key clients. Of particular note is that all the clients contacted said they would recommend Risktec to other companies.

Whilst this positive feedback is gratifying, we will continue to focus on how we can improve our service and we would be keen to hear from clients who may have suggestions they wish to make.

Alan Hoy, Managing Director, concludes, "Risktec today is very firmly established on the international map as a leading provider of risk and safety solutions. The Houston office is already working with major oil companies such as BP, Shell and Marathon. Projects have included providing services such as formal safety assessment, fire protection, management systems, auditing and training.

"Also, given our growth spurt over the last couple of years, it was especially pleasing to get our highest score ever from the customer satisfaction survey. Hopefully the next five years will not fly past quite as quickly as the last ones!"

We hope you enjoy this edition of RISKworld.

For further information, contact Alan Hoy.

Nuclear Power

If there's a will, there's a way

The publication of the UK government's energy review in July 2006 [Ref. 1] signalled the re-emergence of nuclear power as a politically viable means of providing a balanced proportion of the country's future energy needs. The energy review concludes that "higher projected fossil fuel prices and the introduction of a carbon price to place a value on CO2 have improved the economics of nuclear as a source of low carbon generation" and that "new nuclear power stations would make a significant contribution to meeting our energy policy goals".

With the necessary political will seemingly in place, the challenges for the nuclear industry can be brought into sharper focus. These are interlinked and include:

- Financing of new build projects
- Choice of reactor design
- Waste disposal
- Streamlining regulatory and planning consent

Financing of New Build Projects

In its energy review, the UK government makes it clear that it expects the private sector to "initiate, fund, construct and operate new nuclear plants and to cover the full cost of decommissioning and their full share of long-term waste management costs". This demanding expectation is tempered with promises to address potential investment barriers to new nuclear build, including:

- Introducing the concept of pre-licensing by the Nuclear Installations Inspectorate
- Decoupling regulatory assessment from the land-use planning application
- Providing a decision on the long-term management of radioactive waste

Even with these measures in place, there is speculation that the government will need to provide incentives to attract investors. The short-term and volatile nature of the electricity market in the UK makes long-term investment presently unappealing.

This situation is compounded by the state of the carbon market, which was introduced by the EU Emissions Trading Scheme in January 2005. Although carbon trading should, in principle, allow energy businesses to profit from low CO2 emissions, in practice the price of carbon has fluctuated too wildly to back investment decisions. Until the carbon market stabilises, capital outlay in new nuclear power stations may not be tenable unless businesses can secure some form of guaranteed premium (as is currently the case for renewable generation) or a long-term price assurance from the government.

Figure 1 – Framatome EPR

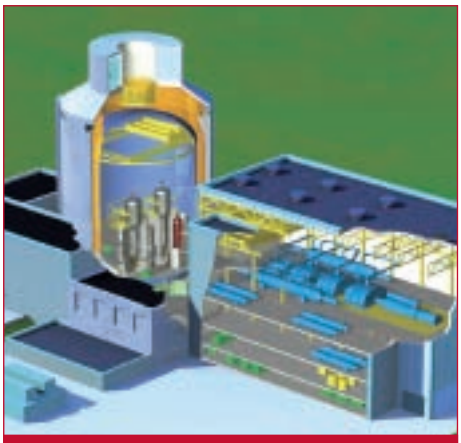


Figure 2 – Westinghouse AP1000

Reactor Design

The front runners for new build appear to be the Framatome ANP European Pressurised water Reactor (EPR) and the Westinghouse AP1000 (see Figures 1 & 2 and Table 1). These Generation III+ Pressurised Water Reactors (PWRs) claim to offer improved safety, reduced construction and operating costs, reduced build times and increased operating lifetimes.

An EPR is under construction in Finland having been granted permission to proceed by Finnish regulators, while the AP1000 has been given 'Design Certification' by US regulators for certain applications, but has not yet been built. These types of reactors are similar in principle to the UK's Sizewell 'B' PWR.

Outsiders include the Canadian Advanced CANDU Reactor (ACR), which

Did you know…

…that nuclear power is surprisingly widespread?

- Nuclear energy supplies over 16% of the world's electricity.
- There are 440 civil nuclear power reactors in 31 different countries, including the US, Canada, Western Europe, Japan and Korea.
- Today there is as much electricity generated by nuclear power as from all sources worldwide in 1961.
- 56 countries operate more than 280 research reactors.
- Over 200 reactors are currently used for naval propulsion.
- France generates over 75% of its electricity from nuclear power and is the world's largest electricity exporter.
- The UK currently has 23 reactors, which generate over 20% of the nation's electricity.

Sources:

1. www.uic.com.au 2. www.world-nuclear.org

Table 1 – Future Candidates for Nuclear New Build				
	Description	Output (MWe)	Life (Years)	Build Cost ($/KWe)
AP1000	A pressurised water reactor with passive safety systems, including passive safety injection, passive residual heat removal and passive containment cooling.	1,100	60	1,200 – 1,500
EPR	A pressurised water reactor with four redundant trains of cooling safeguards housed in four separate buildings. Capable of withstanding impacts from a commercial aircraft.	1,600	60	1,800
PBMR	Helium cooled, enriched uranium fuelled reactor. Fuel is in the form of spheres of graphite coated enriched uranium about the size of a tennis ball. These pass through the reactor and out the other side for disposal or recycling through the reactor.	165	40	1,000
ACR-1000	A pressure tube reactor using heavy water as its moderator at relatively low pressures and light water as coolant. Uranium fuel is only slightly enriched and fuelling can be achieved on line.	1,200	60	1,000

is a pressure tube reactor, and the Pebble Bed Modular Reactor (PBMR), which is due to start construction in South Africa in 2007 [see Table 1].

Waste Disposal

The UK's position on nuclear waste is outlined in the energy review [Ref 1]. For intermediate and high level waste the Committee on Radioactive Waste Management (CoRWM) has proposed that deep geological disposal in a repository is the best option, with a programme of interim storage until this facility can be made available. For Low Level Waste the use of purpose built surface level facilities appears to be the current preference.

For the moment, there appears to be no strategic plan to replace the reprocessing facilities at Sellafield, presumably because of the high dependency on the choice of new reactor design. The government has, however, accepted overall responsibility for managing waste, but expects the costs to be borne by the nuclear power generation industry.

Regulatory & Planning Consent

To build a new nuclear power station in the UK consent is required from the government, to ensure that it fits in with overall energy policy. A licence is needed from the Nuclear Installations Inspectorate, which deals with safety, and the operator needs to be authorised by the environmental regulator to release small quantities of radioactivity in routine discharges. Additionally, planning permission for a particular site is required to assure compatibility with local intentions for the use of land, which can lead to a public enquiry covering all aspects of consent.

As part of the energy review, the government is airing proposals to streamline the planning consent process. Strategic and regulatory issues would be dealt with outside the public enquiry process, which would be constrained to examining local planning issues.

To support this initiative, the UK's Health & Safety Executive (HSE) undertook a public consultation between March and April 2006, to shape proposals for reforming the regulatory process [Ref 2]. The outcome is a scheme with two phases of licensing. Phase 1 is design-specific, but would include the assessment of generic site hazards, such as earthquake or aircraft impact. It may also take into account approvals from nuclear regulators elsewhere in the world, and would invite review and comment from the general public. Phase 2 would address any site specific issues not covered by Phase 1, and would ultimately result in the granting of a site licence [see Table 2].

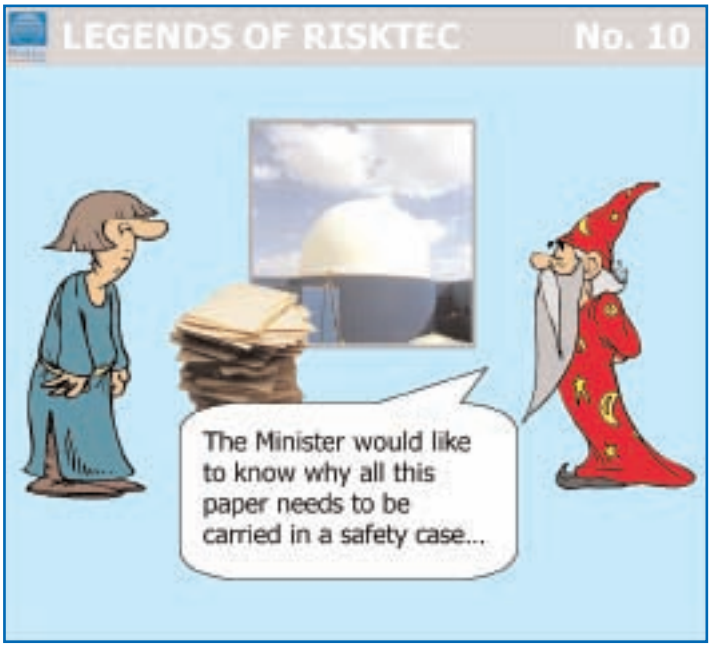
Conclusion

As the political obstacles facing nuclear power subside, the remaining challenges are no less daunting and are inextricably entwined. The planning and regulatory consent process may influence the choice of reactor design and siting, which influence and are influenced by commercial considerations and the waste management strategy. Although it is still unclear how government and the private sector will work together, the boundaries of this multi-billion pound enterprise are beginning to be drawn.

Contact Davy Howie for more information.

1. DTI, The Energy Challenge, Energy Review Report 2006
2. HSE, The Health & Safety Risks and Regulatory Strategy Related to Energy Developments, June 2006

Table 2 - Proposed Licensing Process		
Step	Process	Timescale
Phase 1: Design Acceptance		
1	Produce design & safety case submission based on generic site envelope – site and operator neutral, but covering design, and aspects of construction, operation, maintenance & decommissioning relating to the design.	Applicant-based
2	Fundamental safety review – a short review to identify any major design or safety weaknesses that would prevent granting of a licence.	3-6 months
3	Overall design safety review – a more in-depth review of the design against the Safety Assessment Principles, including aspects such as passive safety, separation, segregation and redundancy.	6-12 months
4	Detailed assessment for design acceptance – a more comprehensive examination of all aspects of the submission, including ALARP assessments and independent verification by HSE. The outcome would be a Design Acceptance certificate with appropriate caveats.	2 years
Phase 2: Site Licensing		
1	Site licence assessment – a verification that the assessment of the Accepted Design remains valid at the specific site, as well as assessment of specific site issues and the operating organisation.	6-12 months



Ten Good Practices for Developing HSE Cases in the Oil Industry

The requirement to develop a formal safety case for any major oil and gas facility has been in place for many years in regulated environments such as the UK and Australia. Today, oil companies and industry associations are applying this requirement in other regions of the world where such legislation does not currently exist. This provides an opportunity to learn from experience and develop concise and pragmatic health, safety and environment (HSE) cases.

Well developed HSE cases not only protect lives and the environment, but help a business manage its assets, maintain its competency and reduce the risk of lost production.

1. Use what you've got, work out what you're missing

All facilities will have at least some, and probably many, existing HSE studies. There is no need to re-do everything from scratch. A useful approach is to conduct a 'gap analysis' of these studies against a set of requirements, e.g. an international or industry standard, to identify what is missing or inadequate.

2. Qualitative risk approaches can identify most improvements

There is no need to rush into time consuming, full quantification of HSE risks. Experience-based, qualitative risk assessment can often identify the vast majority of possible risk-reduction improvements.

3. Record all HSE risks, that way nothing is overlooked

Identifying and assessing all health effects, environmental impacts, workplace safety hazards and major accident events provides an all-encompassing approach. Using a 'risk register' to document these risks creates a valuable reference guide for the facility. Having separate, but inter-linked, registers for health, safety and environment risks can be even better – it improves understanding of the subtleties in how they are managed.

4. But don't neglect major accident events

While some workplace tasks such as grit-blasting can be risky for an individual, they usually rely on the competency of the individual supported by robust procedures to assess and control the risk. It is only major accident events such as loss of hydrocarbon containment that have the potential for massive fatalities, environmental impact, economic loss and reputation damage. They warrant detailed and thorough analysis, followed by an appropriate level of verification.

5. Quantifying risk levels does help in some situations

The purpose of quantitative risk assessment (QRA) is to help reduce risk by supporting risk-based decision-making. It is especially powerful when applied with cost-benefit analysis to compare options during the design phase or modifications during operations. But estimating absolute risk levels solely for comparison with quantitative criteria can be open to manipulation of data, methods and assumptions.

6. There is no easy formula for demonstrating risk is ALARP

The ALARP level is reached when the time, trouble and cost of further risk reduction becomes unreasonably disproportionate to the benefit gained. This implies a mathematical formula but in practice it amounts to taking a balanced view and reaching a defensible consensus on prioritised improvements. A convincing ALARP demonstration lies in the documented consideration of improvement options, both implemented and discounted, at a level of resolution appropriate to the facility life-cycle and magnitude of risk.

7. Involve people, they know what's really going on

Involving personnel in developing the HSE case is critical in gaining ownership of HSE risk management. Commissioning a consultancy to arrive, collect information and then leave to produce a report from their office is a recipe for inaction. Opportunities to involve personnel include participating in workshops, highlighting where safety systems or procedures do not have the benefits claimed, commenting on the accuracy of technical reports, and participating in training. A major benefit of the case comes from the process of preparing it, rather than the document itself.

8. Don't just analyse risk, understand how it is managed

One of the most potent and increasingly popular risk assessment techniques is the 'bow-tie' method because it highlights the crucial link between risk controls (whether hardware or procedural) and the management system and personnel competencies necessary for their ongoing effectiveness. It thus helps to ensure that risks are truly managed by competent people, rather than just analysed.

9. Live by the HSE case, don't stick it on the shelf

It is only through the continued communication and implementation of the HSE case that sustainable improvements in HSE are likely to be maintained. Examples of deliverables in a roll-out plan include information presentations, leaflets, booklets, e-learning packages, accountability packs and intranet websites.

10. And finally, risk management requires action not words

It is surprising how many people need reminding that risk levels will remain the same, or even increase, until real improvements are fully implemented. A case can generate a large number of recommendations and these need to be properly managed. More analysis or rousing speeches are not the solution. The solution is more action.

For further information, contact Mark Taylor

Closed-Loop Risk Management

The concept underpinning enterprise risk management (ERM), namely a portfolio view of risk, has been around a long time. Today, many companies have done a great deal of work to assess enterprise risks. But traditionally these assessments have been fragmented and resulted in compartmentalising risks into "silos". Much less has been done to embed an effective ERM framework into an organisation, from the executive through the managerial levels to operations.

Table 1 – User Requirements

Executives - Require summarised and exception information, as well as assurance that risk governance policies are being met

Managers - Need access to a full set of risk tools and to the relevant risk information repository, as well as reporting and analysis tools, workflows and information relationships

Operations staff - Need an efficient method of contributing to the ERM process that also supports their day-to-day activities

To help companies better manage enterprise risks, Risktec has partnered with Strategic Thought Group plc, the provider of Active Risk Manager (ARM) – the leading ERM solution available today with thousands of users in 12 industry sectors. Risktec's contribution focuses on implementing ARM in a way that helps an organisation take full benefit of the ability to aggregate risks and measure and improve risk performance.

Closed-Loop Risk Management

ARM provides the functionality required to implement a broad range of risk, governance and compliance standards, including COSO (ERM & Controls), PmBok, HIPAA, CMMI, RMM, CMI, COBIT, SarbOx, HSC, The Orange Book, EFQM and Basel II. ARM actually goes further in that it can also be configured to allow businesses to apply their own ERM process.

The vision that guides ARM is Closed-Loop Risk Management (CLRM) [Ref. 1]. "Closed-loop" refers to the ability of the operational layer of a business to provide information on losses and near misses, enabling managers to report on how effective the risk management process has actually been, thereby demonstrating visible return on investment and "closing the loop" in the sense of a systematic process.

The cooperation between executives, management and operations, and the feedback of information from operations through to management and then to the board, also "closes the loop" in the practical sense of communication. Figure 1 illustrates these concepts.

User Interaction

A single ERM solution for all potential users of an organisation needs to offer multiple methods of user interaction with the system to meet the specific needs of each area of responsibility (see Table 1).

ARM provides a different user interface for each user group. Extensive flexibility enables the product to meet the needs of the entire organisation.

Figure 1 - Closed-Loop Risk Management

Functionality and Technology

ARM has an unparalleled level of functionality, supported by an ongoing development programme. The system provides deep functionality in each of the specialist risk types (e.g. insurance, project, corporate, H&S, financial, operational). The technology platform provides a secure web enabled solution that ensures universal staff access and significantly reduces technical barriers to deployment of a large-scale enterprise application.

Benefits

CLRM not only reduces costs (as well as the cost of risk management) across the business, but also enables a business to measure how effectively risk prevention and mitigation plans have reduced losses. Table 2 summarises the benefits.

Table 2 - Benefits of CLRM and ARM

- Caters for all levels of the organisation
- Enables an aggregate view of risk, allowing true consolidated assessment and reporting
- Technical architecture removes barriers to enterprise rollout
- Supports a fully cyclical risk management process that includes losses and near misses
- Supports other key business functions, e.g. insurance, continuity planning and complaint management

Challenges and Solutions

The two biggest challenges facing the practical implementation of ERM include the ability to measure and compare different types of risk in a consistent way and the need to encourage enthusiastic ownership of these risks at all levels of the organisation.

A technological solution such as ARM provides the tools to help catalyse action: "what gets measured gets managed".

A carefully managed roll-out programme, involving training in risk management by specialists such as Risktec, is critical to successful software implementation: the importance of culture and change management cannot be under-estimated.

Contact Steve Lewis for more information

Ref 1 – Strategic Thought: Closed-Loop Risk Management, 2006

The Olympic Dream: Integrated Railways for 2012

Stratford Railway Station, 2012

On 27th July 2012, London will play host to the world's largest sporting event – the Olympic Games – which will bring an estimated 9.7 million spectators to London over 16 days. Transport for London (TfL) has been tasked with providing a public transport system that will not only deliver games-specific projects and services but which will also maximise and enhance the use of the existing transport network [see Table 1].

Undeniably ambitious, this programme presents many technical, logistical and planning challenges which in turn give rise to many risks with the potential to adversely affect safety, reliability, performance and the reputation of London and the UK. Identifying, assessing and adequately controlling these risks are therefore crucial to the successful delivery of these projects as well as the success and long-term legacy of the 2012 Olympic Games.

Successful delivery centres around five main issues:

1. Technical Integration

Difficulties or delays may arise from the technical challenges associated with integrating new technology into an existing operational railway. Competing factors include assuring a minimum of disruption to passenger service, while providing a final railway that delivers the expected performance. One example is the Victoria Line Upgrade Project which involves introducing new larger trains which will be run on renewed track, signalled by a new radio system which will operate from a new service control centre.

2. Physical Integration

There are significant physical constraints placed upon any new system by the existing physical infrastructure. One important example is providing fully compliant mobility impaired access on an old, deep level tube system.

3. Commissioning and Migration

Proving the functionality and reliability of new systems is complicated in many cases by the requirement to provide a period of running old and new systems concurrently, before switching over to the new system.

4. Access Constraints

Much of the demanding Olympic works programme will be restricted to 'engineering hours' at night or over the weekend, and will need to minimise disruption during peak travel times. Each project will require dedicated planning, integrated logistics and flawless execution.

5. Programme and Organisational Complexity

The preparations for the Olympics are a hugely complex undertaking, with work being carried out by a myriad of supply chain partners. With this comes a large number of dependencies and interactions between diverse organisations, all with their own interests and priorities. The challenge will be to engender collaboration in such a way that the delivery of the Olympic railways is structured around key strategic goals rather than individual projects.

A Risk-Based Approach: The Key to Successful Delivery

As part of their day-to-day business, key stakeholders within each of the projects should aim to identify and understand their project risks, and as importantly, should make certain that they are being actively managed. To this end, visible links must be made between risk controls and their implementation. In addition to the traditional links to specific project tasks, links can also be made to responsibilities, procedures, competencies, verification activities and auditing protocols that underpin the project management system.

To support this endeavour, there is a range of well established risk management tools and techniques to draw on, together with best practice from both the railway and other business sectors [see RISKworld, Issue 9].

Conclusion

As with all major projects, the Olympic railways programme has an array of project risks. Less routine are the sheer scale and diversity of risks associated with integrating new projects with the existing infrastructure and systems without disruption, coupled with the absolute nature of the delivery deadline. The project must be completed, successfully, on time. No ifs, no buts.

The key to successful project delivery lies in the continuous visibility of risks throughout the programme life-cycle. As important is the need to communicate and act on this information, not just within projects but also across organisational boundaries. Success for the 2012 Olympics means rising to the challenge now.

Table 1 – Major Rail Projects for 2012

- New Channel Tunnel Rail Link between King's Cross/St Pancras and Stratford International, utilising new high-speed 'Javelin' trains
- Major station upgrades, including Stratford, King's Cross and Victoria
- Jubilee, Northern and Victoria Line upgrades, to include new signalling, rolling stock and track
- Docklands Light Railway: extension to Woolwich Arsenal
- Docklands Light Railway: new Stratford link (major extension to Stratford International)
- Docklands Light Railway: major capacity enhancement from Bank to Lewisham
- East London Line extension
- Fully accessible network for mobility impaired persons, includes providing both street level access (e.g. lifts) and platform access (e.g. humps)

For further information, contact Jacqui Cooney

For further information, contact Risktec Solutions at: **Email** - enquiries@risktec.co.uk **Website** - www.risktec.co.uk

UK Principal Office, Wilderspool Park, Greenall's Avenue, Warrington, WA4 6HL, United Kingdom Tel +44 (0)1925 438010 Fax +44 (0)1925 438011
Falck Global Safety, Verbeekstraat 4, 2332 CA Leiden, The Netherlands Tel +31 71 572 7734 Fax +31 71 572 7735

Aberdeen Office
Riverside House
Riverside Drive
Aberdeen
AB11 7LH
United Kingdom
Tel +44 (0)1224 224454
Fax +44 (0)1224 224455

Dubai Office
1204/4, 12th Floor
Crowne Plaza Commercial Tower
PO Box 62425
Dubai
United Arab Emirates
Tel +971 4 332 8729
Fax +971 4 332 8860

Glasgow Office
The Technology Centre
Scottish Enterprise Technology Park
East Kilbride
G75 0QD
United Kingdom
Tel +44 (0)1355 813630
Fax +44 (0)1355 813631

Houston Office
1110 NASA Parkway
Suite 203
Houston
TX 77058
United States of America
Tel +1 281 333 5080
Fax +1 281 333 5089

London Office
74 Bermondsey Street
London
SE1 3UD
United Kingdom
Tel +44 (0)207 357 9942

Malaysia Office
MNI Twins
Tower 2, Level 7
Jalan Pinang 50450
Kuala Lumpur, Malaysia
Tel +603 2168 8352
Fax +603 2168 8485