

EUROSAFE TRIBUNE

#005

MARCH

2004

DECISION MAKING

A STAKEHOLDER INVOLVEMENT ISSUE

A review of the main
themes discussed
at the fifth
EUROSAFE Forum
held in Paris
in November 2003.

CONTENTS

LECTURES-DEBATES ... p. 4

Stakeholder involvement in nuclear issues

The European energy landscape
post-enlargement ... p. 4
Dare more democracy in decision
making on nuclear issues ... p. 7

SEMINARS ... p. 14

Nuclear installation safety assessment:
adapting safety requirements
and assessment means
to new challenges ... p. 14

Nuclear installation safety research:
stepping up cooperation in Europe p. 16

Waste management:
paving the way for underground
laboratories ... p. 18

**Environmental and radiation
protection:** innovative assessment
approaches and support for policy
making ... p. 20

Nuclear material security:
striving for the convergence
of physical protection in Europe ... p. 22

STAFFING PROJECT ... p. 24

A GRS-IRSN team to envision
the common future of technical safety
organisations

VENUES & WEBSITES ... p. 26

Upcoming meetings on nuclear safety
and radiation protection, and
a few Web links for reading more about
stakeholder involvement in nuclear issues

► All the papers referred to in the seminar review
are available on www.eurosafe-forum.org



Jacques Repussard and Lothar Hahn

Some unprecedented changes are reshuffling the nuclear safety cards for the European continent. On the one hand, the enlargement of the European Union brings Russian-design power plants into the EU reactor fleet for the first time and sees new plants being planned or built. On the other hand, the liberalisation of the European electricity market results in fewer, more powerful players, and calls for the increasing interconnection of grids and, subsequently, of power supply issues. As electricity becomes a commodity like any other, its generation, transport and distribution price is supposed to include all the costs related to safety, dismantling, waste disposal, etc.

New issues arising from both these trends imply that nuclear safety and radiation protection policies need to be modified. Firstly, sustaining power supplies even though the rate of new capacity installation remains far below that of increased demand for electricity may be conducive in the future to the life extension of current reactors while operating them in an ever dependable way through suitable upgrading. And this requirement must be complied with union-wide, regardless of the increased technical complexity arising from the integration of new reactor types. Secondly, projects have to be funded, designed and implemented in a timely manner to ensure safe, cost-effective dismantling of decommissioned facilities and the disposal of radioactive waste.

In this context, momentum must be gained through ever closer cooperation in the process of bringing about convergence in the skills, means and practices of member states' technical safety organisations. Complementarities are to be found in the role of the regulatory authorities at three levels: EU member states, the European Commission and international organisations. Last but not least, more democracy is to be introduced into the decision-making processes pertaining to nuclear issues, through easier access for all stakeholders to information and open debates involving non-institutional organisations, local communities and the general public. This is what the EUROSAFE Forum, held in Paris on 25 and 26 November, 2003, was all about. As the organising parties, GRS and IRSN wish you pleasant reading. ●

LECTURES-DEBATES → STAKEHOLDER INVOLVEMENT IN NUCLEAR ISSUES

Depending on their culture and institutions, European countries traditionally have diverse experience of opening the nuclear debate to local communities, non-institutional bodies and other stakeholders concerned with nuclear projects. As ten accession countries from the central part of Europe are about to join the Union and the possibility of building new reactors is contemplated, the stakeholder involvement issue is attracting attention at institutional and governmental level, a trend attested to by the selection of this very topic as the focus for the 2003 Eurosafe Forum.

The European energy landscape post-enlargement

■ As a specialist in the electricity market, Antony Froggatt recently worked as a rapporteur to the European Parliament on the revision of the electricity market directive. He opened the Eurosafe Forum 2003 debates on democracy in decision-making and nuclear projects by giving his views on how EU enlargement and the liberalisation of the electricity market impact the nuclear sector. He also pointed out what this means in terms of public information and awareness. The Eurosafe Tribune provides a few highlights from his presentation.

› The changing nuclear energy landscape in an enlarged European Union

■ The first outcome of the enlargement process was the decommissioning of reactors in future member states. In total, eight reactors operating in three countries – Bulgaria, Lithuania, and Slovakia – will be closed by 2010. The first of these closures has already occurred, when units 1 and 2 of Kozloduy in Bulgaria ceased operation in

December 2002. The enlargement process will not currently affect the operating lives of the other sixteen reactors in service in accession countries, where 17% of all electricity is generated in nuclear reactors (which is roughly half the percentage in the EU). It should be remembered that, in an EU of 25 countries, nuclear power will remain the largest supplier of electricity, producing about 32%. Assuming an oper-

ating life of 45 years, which is an extension of the current proposals in most countries, 2.6 gigawatts of new capacity must be ordered each year just to maintain current levels of installed capacity. However, between 1990 and 2010, it is likely that only 10 gigawatts of new capacity will be installed in the newly enlarged EU.

■ One other clearly observable trend is that of market concentration, whereby a small number of utilities are increasing their dominance of the energy and utility sectors in the EU. Over the last seven years, the seven largest energy utilities have invested nearly 90 billion euros in acquisitions in Europe. The growth of these super-utilities increases the economic power of a small number of companies. Their potential influence, especially relative to national regulators, may increase in consequence.

› Six key post-enlargement issues

A Eurobarometer poll on radioactive waste published in April 2002 showed that the public trusts information from independent scientists and non governmental organisations more than information from either government or national agencies dealing with nuclear waste. Such perceptions are important to bear in mind when considering six points that may impact upon public awareness of nuclear power in the coming years.

■ The continued operation of some RBMKs and the VEER 440-230s. Despite the fact that they have been classified by many in the international community as high-risk and non-upgradeable, these reactors will continue to operate post-enlargement. This highlights the lack of a common nuclear safety standard in the EU and suggests a different tolerance of nuclear risk. Every effort must be made to ensure that, at



“Assuming an operating life of 45 years, 2.6 GWe of new capacity must be ordered each year just to maintain the current levels of installed capacity.”

minimum, the currently agreed closure dates are adhered to.

■ **Binding nuclear safety legislation?** The Commission proposed a set of safety standards and, additionally, mechanisms for monitoring compliance with them and imposing penalties for failure to comply. However, it is now not clear that any binding legislation will be adopted at all, and even if it is, the drafts of the directives currently being discussed no longer include requirements on safety standards.

■ **The question of decommissioning funds.** The European Parliament and Commission have stated that action needs to be taken to ensure that sufficient funds are accumulated during the operational life of reactors to enable decommissioning and waste management activities to be undertaken. As more reactors are closed, there will be greater public awareness of decommissioning, and thus every effort must be made to increase transparency.

■ **The issue of reactor ageing.** Currently, the average age of the reactors is 22 years. Although there is no binding operating life for reactors, many have expected reactors to operate for between 30 and 40 years. However, some utilities are now seeking to operate their reactors far longer, both to retain their share of the electricity market and to increase profits. The safety and market implications of these “life extensions” must be carefully assessed and communicated to the public.

■ **The construction of new reactors.** The enlargement process will result in new construction in the EU for the first time since 1999. The reactors in question are the Russian-designed Mochovce 3 and 4 in Slovakia. This once again highlights the difference in safety standards between member states. Furthermore, since →



Benoît de Boeck

*Deputy Director General
Association Vinçotte Nuclear*

Provided they are recognised as independent of operators, safety authorities, and business and political interests, technical safety organisations have a distinctive part to play as trustworthy, dependable partners to all stakeholders in democratic decision-making processes.

To be recognised as such by the public, TSOs must draw upon their valued scientific

and technical expertise and demonstrate their independence of constraints which would influence their assessments.

Internationally consistent technical advice is all the more necessary now that market deregulation has allowed power companies to expand operations far beyond national borders. For their part, regulatory bodies are persuaded of the need to participate in networked

projects at WENRA level, aligning their requirements and thus avoiding discrepancies which would be detrimental to efficient market competition and to the credibility of the safety approach. TSOs can support this development by sharing technical assessments and building a common requirement and reference guide. Now, they need to formulate a clear strategy for this purpose.

→ the last reactors were ordered and built in the EU, there has been a dramatic increase in awareness of the susceptibility of infrastructure to terrorism. Every effort must be made to convey to the public how these concerns are being addressed from technical and planning perspectives if other reactors are to be ordered.

■ **Europe's energy market liberalisation.** The introduction of the next stage is likely to increase the price volatility for electricity

and may well lead to a general lowering of prices across the EU. With its high fixed costs, nuclear power is particularly affected by price decreases, and already the negative impact of the reduction in income has been seen in some countries' nuclear sectors. Increased attention must be paid to this issue, with the introduction of new electricity market regulations – especially in accession countries, as they are required to transpose both the current and revised market directives in quick succession. ■

“Post-enlargement, nuclear power will remain the largest source of electricity in the EU.”



Dare more democracy in decision-making on nuclear issues

■ Stakeholder access to information, productive public debate and democratic decisions draw upon a set of prerequisites: the involvement of NGOs and individuals in the decision-making process, strengthened institutional – as well as non-institutional – expertise, a consistent regulatory framework and enhanced mutual assistance among member states, along with investment in education, expert training and knowledge conservation stand as the pillars of the “nuclear democracy”.

THE INVOLVEMENT OF NGOS AND INDIVIDUALS IN THE DECISION-MAKING PROCESS

In spite of the enlargement of the EU, only a few new reactors are planned by its member states. Nevertheless, several radwaste disposal facilities will have to be sited and built within the next couple of years. What does democracy mean when projects have to be decided which will impact neighbouring populations for a very long time? How should the stakeholders be associated with the decision-making process? What is a government's institutional duty regarding public access to information? Who should participate in the administrative proceedings? Martin Bursik, former Minister for the Environment of the Czech Republic and now manager of Eco Consulting, and Bruno Lescœur, head of power generation and trading at EDF, express diverse perspectives.

> The need for a mindset evolution

Mr. Bursik started by recalling the situation in 1998, when the 67% – state-owned utility Czech Energy Works was constructing the Temelin NPP. The government was very critical at that time because Czech Energy

Works was providing the government with information which changed from month to month, causing President Havel's distrust. With a view to monitoring the project's economics and safety, the government resolved to call for international, independent expertise and set up a team which included specialists from neighbouring Austria.

Mr. Bursik also highlighted the part played by South Bohemian Mothers, a NGO which fought a 23-month case against Czech Energy Works to participate in the environmental impact assessment procedure. South Bohemian Mothers won the case in court and around 7,800 changes were made to the Temelin project. But by the time the trial ended, Temelin had already been put into operation. *“The democratic experience of Temelin has been a very bad one, Mr. Bursik concluded. It is ongoing, since the Vice-Minister of Industry and Trade was arguing for the construction of new nuclear blocks, saying there would be no problem with the local people, because they would get a new football pitch and would therefore agree. Of course, the NGOs opposed this, saying that it was insufferably arrogant to assume people would bargain a nuclear power plant for a football playing field.”* ➔



› Public debate governed by law

Bruno Lescœur reminded the audience of the situation in France, where a law called the Barnier Act requires a debate to be organised for any project above a certain size: electricity transmission lines, nuclear power plants, etc. The national commission on public debates appoints a chairman, who sets up a team tasked with organising the debate and inviting all stakeholders – associations, organisations, NGOs, individuals, etc. – with a view to listening to their opinions. *“Interested parties are expected to voice their views in the form of well-constructed arguments, so as to transcend the purely emotional issues or aspects”* said Lescœur. Such a procedure enables the legitimacy of the various diverging interests to be acknowledged as well as the operators’ responsibilities. Adding to this, Mr.

Lescœur explained his understanding of the reasons and objectives behind a debate: *“By its very nature, the debate brings out conflicts of interest. A decision cannot satisfy all of the interests because they diverge by definition. So what you are really trying to do is be clear about the way the groundwork was done in the run-up to the decision, who is responsible for it and in what context, within what framework the decision was made, to what extent the legitimate interests of the different parties involved have been voiced. And then the decision is taken accordingly.”*

› From democratic laws to democratic practices

The Czech constitution gives municipalities the right of self-government and requires them to act in the interest of their inhabitants regarding urban development



Beat Wieland

Head of Nuclear Energy Section
Swiss Federal Office of Energy

The Swiss situation offers a good example of the difficulties associated with involving local communities in decisions pertaining to nuclear projects. So far, Nagra⁽¹⁾, the National Cooperative for the Disposal of Radioactive Waste, has not succeeded in selecting a site for the disposal of low – and intermediate – level

radioactive waste. After the government of Canton Nidwalden issued the concession in September 2001 it needed to be ratified by a popular vote, and in a public referendum on 22 September 2002, the voters of Canton Nidwalden rejected the proposed concession for exploratory drift and underground investigations at Wellenberg with a 57.5% negative vote... while the projected siting community of Wolfenschiessen voted in favour (55.5%) of the concession application! Nagra had provided open information, but the public had not been involved at the very beginning of the decision-making process.

Within the high-level waste disposal programme, the Entsorgungsnachweis (“Feasibility-demonstration”) project was submitted to the Federal Government in December 2002 for review. The project is based on the Opalinus Clay option in the potential siting region in the Zürcher Weinland. The Federal Council’s decision on the feasibility demonstration and on how to proceed is expected in 2006. Drawing on the lessons learnt in the Wellenberg case, a broad consultation procedure will be carried out. An open forum held in October 2003 in one of the villages concerned by the project gave the different stakeholders – the regulator

and safety assessment organisations, federal and cantonal authorities, local communities and opponents – an opportunity to introduce themselves, present their views and have a discussion with local residents. The aim was to enter into open and broad dialogue, following the Swedish model of discussion and selection processes closely involving the public. The pivotal issue for stakeholders interested in solving the radioactive waste problem is to take all the local, cantonal and federal levels into account, although they are often in disagreement.

(1) Nationale Genossenschaft für die Lagerung radioaktiver Abfälle

and environmental protection. *"But they do not actually have the right to influence either the nuclear power plant or the site. I think this big discrepancy is all the more unbearable since the European Court decided that electricity was a commodity like anything else. From my point of view, there should be a fair price for every electricity producer on the market, and no special treatment for either conventional or nuclear power plants. I think the biggest failure of democracy is that it does not allow public participation in the process,"* Bursik pointed out, adding, *"If a concrete decision is being taken about a new site for a nuclear power plant or waste disposal, a place must be created for local municipalities and NGOs so they can protect the rights of the people who will be affected by the site and prepare an argument in favour of nature protection. This is the basic principle behind the NGO's right to be part of the administrative procedures."*

› What accession countries can expect from the EU

Mr. Bursik anticipated the implementation of the EU directives introducing more democracy into decision-making on nuclear projects, causing the governments of the accession countries to revise the legislation on access to information. But in his opinion, the development process in environmental protection might be much slower. *"This is where a number of NGOs are trying to educate the stakeholders and show them the way: what rights they have, how they should apply them, what sort of arguments to use to get access to information on time. So I think it is a matter of time until democracy and the democratic culture will be on a level so that all the partners in the process respect the legislation"* he stressed.



THE NEED TO STRENGTHEN INSTITUTIONAL EXPERTISE...

The Centre for Nuclear Safety in Central and Eastern European countries (CENS) reviewed institutional nuclear expertise in five countries: Hungary, the Slovak Republic, Slovenia, Romania and Armenia. The first conclusion of this analysis was that the technical expertise in these countries is comparable with Western European practice. The second conclusion was that technical competence is internationally recognized, but there are some difficulties with technical support organisations being both on the regulatory, hand on the operational side. As regards staffing, the current financial resources of nuclear regulatory authorities are still not sufficient and a significant turnover in staff was observed. Post-enlargement, Eastern European experts might establish themselves in Western member states, thus reducing the capabilities of the Eastern nuclear regulators. Concerning staff skills, there is a strong need for training in inspection practices in the field of quality management.

...AS WELL AS NON-INSTITUTIONAL EXPERTISE

Nuclear issues are not at the top of the agenda any longer, replaced in most countries by global warming and climate change, and with Green parties increasingly taking over political responsibilities at different levels – including government level – certain non-institutional activities get more funding, whereas the work of some independent experts experiences a slowdown. However, the professionalising of independent expertise and its integration into nuclear safety and radiation protection →



→ policies remains a major trend, as evidenced by the growing number of reports commissioned by NGOs. Besides funding, education and training are further crucial points: in most countries, the ageing of the professors and the students' lack of interest in nuclear questions are matters for concern. On the other hand, the improving level of European cooperation is obviously a positive driver. Nonetheless, to enhance public awareness of these issues, there is still a need for in-depth quality journalism.

A CONSISTENT REGULATORY FRAMEWORK

In Europe, nuclear safety is currently the responsibility of operators supervised and controlled by national regulatory bodies which, to a wide extent, rely on standards set by the International Atomic Energy Agency and transposed into national regulations. With a view to preparing for 2007's complete liberalisation of the electricity market, the European Commission adopted in November 2000 a Green Paper aimed at guaranteeing an equivalent level of safety in all member states, possibly through legally binding requirements. Will this move tend to upgrade or to lessen the safety level of EU nuclear power plants? The Eurosafe Tribune took notice of dissonant views voiced by Nina Commeau-Yanoussis, Head of the Euratom Coordination and Nuclear Safety Unit of the European Commission's Directorate General for Energy and Transport, Judith Melin, Director General of SKI, the Swedish nuclear energy inspectorate, and chair of Wenra (Western European Nuclear Regulators' Association), and Tomihiko Taniguchi, Deputy Director General of the IAEA Nuclear Safety Department.

› Do European regulatory authorities and technical safety authorities fully play their role?

According to Mrs. Commeau-Yanoussis, the EC's position is that the energy package – the 'energy bouquet' as it is also called – should be as diversified as possible. Regardless of the generation mode in the single market, standards must provide for a high level of safety throughout the European Union. *"Something that has not been done up to now is checking that the national nuclear regulatory authority or the safety authority would fully play its role and be seen to do so. This verification does not exist and that is what we want to bring in"* she asserted, whereas Mrs. Melin claimed appropriate nuclear safety can be guaranteed only by a national authority, since the reactor fleet in operation in the EU consists of different designs and different ways of meeting safety issues. *"You cannot regulate it on a general basis. You actually need a deep knowledge of the facility on its own and of the culture in which it is operated, and that is done by the national regulator, by inspections and regulations."* To her, the IAEA and Euratom standards are sufficient for this purpose, and no additional definitions should be introduced in technical regulations at the European level.

› Should a legally binding framework be introduced by the EC in the Europe of 25?

Mr. Taniguchi pointed out two main reasons for strengthening the work done at IAEA level: first, most of the nuclear development activities in recent years and in the coming five years take place outside of Europe, particularly in Asia. Second, whatever country is concerned,

the consequences of a nuclear accident go far beyond national borders. In such a context, the Safety Convention (a legally binding international instrument which is periodically reviewed) should remain the basis for aligning nuclear safety on a global scale. *"If the European Commission intends to develop a new arrangement, this should be consistent with, and complementary to, the national effort, as well as with the international instruments already in place. The IAEA can work more closely with the Commission and with the member states to develop complementary, consistent systems"* stressed Mr. Taniguchi, who regards this as particularly important for public credibility and trust. Supporting this view, Mrs. Melin declared, *"The standards evolved so far are at a very high level, and regulatory bodies worldwide are using them and transforming them into national regulations. We need a system where we can take on new experiences for improving requirements, legislation and performance. It is harder to find these means in a legal framework, so we are proposing a non-legally binding framework."*

> Would a legally binding framework facilitate or hinder cooperation between regulatory bodies?

According to Mrs. Melin, safety improvements largely result from experience shared in an open way and that inviting teams from different countries for peer-review is aimed at exchanging views rather than telling a particular regulatory body what to do. *"It is important to have a non-legal framework in this continuous task of improving safety. If we have to review each other within a legal framework set up by the EC, I think openness in sharing information will be lost. So I see that as a danger."* Mrs. Commeau-Yanoussis voiced a quite different perspective: *"I am surprised that we are able to assess nuclear safety in countries that are not yet members of the European Union and yet we are not able to organise the verification system in the enlarged Union at the same time. I do not see any reason why we should not be able to do one alongside the other."*



Dr. Martin Bursík

*Executive director of
Ecoconsulting - energy and
environmental consultancy
Prague, Czech Republic*

My experience as a former Czech Minister of the Environment taught me that daring more democracy in decision-making begins with reformulating the role of governments in integrated markets. Their task is no longer planning and/or investing in new power production, since markets are open, but mainly creating and regulating the competitive markets. Since market mechanisms are

not able to incorporate the costs of environmental damage in the energy sale price, governments should introduce environmental tax reforms, with the aim of gradually making energy prices reflect, via differentiated consumer taxes, the negative environmental impacts specific to each power generation mode. Nuclear power in particular should confirm its competitive place on the

market. There is no excuse for special conditions for nuclear in terms of capped responsibility or limited liability. Governments should involve local authorities in the decision-making process, as they are increasingly self-governing and are responsible for environmental issues as well. This, in my view, is the way to reconcile democracy and nuclear energy.

LECTURES-DEBATES



Jacqueline Garnier-Laplace

*Head of the Laboratory
of Radioecology
and Ecotoxicology IRSN*

Data on internal contamination and the effects of chronic low-level exposure to radionuclides are currently largely lacking, though such data could help revise the applicability limits of the dose concept while taking into account the exposure specificities of wildlife and members of the public. Since extrapolation from acute to chronic exposure involves major uncertainties in terms of assessment and doses delivered to the target organs, the Envirhom programme was initiated to study the effects of chronic low-level exposure on the physiological functions of human and non-human organisms. Concerning radioprotection of the environment, the knowledge gained should enable ecological risk assessment to be applied to radionuclides for that type of exposure. The work performed so far has revealed that chronicity of exposure to a pollutant leads to different biokinetics and toxicity mechanisms than are observed when the exposure is acute. It is also apparent that knowledge of radionuclide bioavailability is crucial to an accurate assessment of exposure and effect. In terms of radiological protection policy, understanding the underlying mechanisms involved in bioaccumulation and effects will ensure that any extrapolation to other situations than those studied is based on science-based reasoning.

ENHANCED MUTUAL ASSISTANCE AMONG MEMBER STATES

Over more than a decade, several international assistance programmes in accession countries have paved the way to convergent safety policies and practices throughout the European continent. As an executive of the DG Enlargement at the European Commission, José Antonio Gomez Gomez summarised the main aspects of these programmes.

■ **Strategy of the assistance programmes.** The short-term measures basically consisted of providing on-site assistance to improve the safety of NPPs, as well as helping countries set up independent nuclear safety authorities. The long-term strategy was to create a sustainable situation by helping upgrade nuclear reactors and replace them with safer reactors. Progressively, the accession countries' responsibility for implementing assistance programmes such as Phare increased.

■ **Accession negotiations.** For the first time, nuclear safety was part of the negotiating process, as nuclear safety in the candidate countries presented certain differences from the practices prevailing in European Union countries. The European Union Council therefore decided to conduct a nuclear safety evaluation which encompassed not only NPPs but various kinds of nuclear facilities as well as the regulatory regime: legislation, management of regulatory bodies, etc.

■ **Safety programme fund.** The 560 assistance programmes amounted to 220 million euros, not including the financial support earmarked for decommissioning (another 500 million euros).

■ **Decommissioning.** The EC conducted a political dialogue with representatives from Bulgaria, Lithuania and Slovakia on decommissioning within the framework of their accession negotiations, and these countries are committed to the early closure of certain (RBMK and VVER 440-230-type) units.

■ **Achievements.** Phare has contributed to strengthening independent nuclear safety authorities and a safety culture in the regions by encouraging formal dialogue between operators and regulators. Certain projects helped improve design and operational safety, including the provision of equipment. The issue of radioactive waste management, including the creation of dedicated agencies in the accession countries, was also addressed.

■ **Future prospects.** No longer available for the ten countries joining the EU in spring 2004, the Phare programme will continue for Romania and Bulgaria, basically following the strategy defined over the last few years. Some of the ten new member states will be supported through a new instrument called 'transmission facility', aimed at enhancing the capabilities of the nuclear safety authorities and radioactive waste management agencies.

INVESTMENT IN EDUCATION, EXPERT TRAINING AND KNOWLEDGE CONSERVATION

What is done to attract young people into the nuclear industry? What perspectives are they offered?

In France, a member country of the Generation IV advanced fuel initiative, any young scientist taking part in a conference will hear that the country is going nuclear and feel quite comfortable with his/her future.

In the United States, a dramatic decline in the number of students enrolled for nuclear studies was recorded, and the government decided to consecrate the equivalent of 6.5 million euros for the current fiscal year to attract PhD students and transfer them later to labs or industry.

The situation in Germany is quite different: according to official figures, not a single student graduated as a pure nuclear engineer in the last few years, whereas many jobs need replacement. Because of the 2002 Atomic Energy Act, which ends nuclear electricity production in the country, nuclear education lacks prospects and fewer students are enrolling at universities because programme contents are shrinking.

The alliance for competence in nuclear technology – which brings together the Jülich, Karlsruhe and Düsseldorf research

centres, GRS and the associated universities – was set up by the Ministry for the Economy to assess the status of nuclear research in Germany and to calculate future budget and staff needs. In parallel, the Helmholtz Association provided money for a considerable number of PhD students hired together with the universities in ‘virtual institutes’, while German utilities set up PhD programmes aimed at hiring PhD students in research centres, educating them and providing them with jobs in the utilities after their academic course.

For its part, the EC set up a European nuclear education network with a view to introducing a commonly accepted European Master of Science degree in nuclear engineering. The student would go through nuclear-specific courses in at least two member states and be awarded a degree accepted Union-wide. ■



Nuclear Installation Safety Assessment: Adapting safety requirements and assessment means to new challenges

■ Nuclear safety is permanently challenged by the complexity associated with plant operation. Even minor incidents must be considered as part of relentless questioning about the dependability of systems and instrumentation. To allow more and more complex operation in the facilities while enhancing accident prevention and to prepare for the next generation of nuclear facilities, if any, intensified cooperation on an international scale is necessary, involving the sharing of know-how, approaches, lessons learnt and progress.

Of the eleven contributions presented at the seminar devoted to the Safety Assessment of Nuclear Installations, the Eurosafe Tribune picked five topics reflecting the sort of actions carried out by technical safety organisations in recent months.

› New operating procedures in existing plants

To shorten the outage periods of its reactors in order to increase their availability, Electricité de France has reduced the time between reactor shutdown and the end of fuel unloading.

Therefore, equipment involved in fuel storage safety is currently being operated beyond the original safety limits defined in the nuclear plants' limited authorisation. IRSN therefore assessed global studies performed by the operator on incidental or accidental operating situations that could affect the cooling function of the spent fuel pool in French 900-MWe NPPs.

› Management of severe accidents

Over the last 12 years, the OECD/NEA Committee on the Safety of Nuclear Installations (CSNI) has performed work in the area of the instrumentation to manage severe accidents. Analyses have shown that instruments conservatively qualified for regular design-basis accidents also show unexpected capacity for remaining operational in severe accident conditions they were not designed to sustain. These results have considerably eased the management of potentially severe accidents and increased confidence in the effectiveness of such instrumentation.

› The construction of new research reactors

Planned for the CEA Cadarache site, the Jules Horowitz reactor (RJH) would be a pool-type research reactor, cooled and moderated with light water. The assessment performed by IRSN indicates that

the safety-related options taken by the operator (CEA) will allow safety levels consistent with those of future power reactors to be obtained. Considering severe core-meltdown accidents from the design stage would seem to be the most significant progress. However, the assessment led to a certain number of recommendations being issued, in particular pertaining to some of the operator's assumptions and approaches (e.g. energies considered for Borax accidents).

› State of the art safety requirements

The German Nuclear Safety Standards Commission (KTA) brings together manufacturer and NPP operator experts, authorized experts and state officials. The KTA-2000 project started in 2000 aimed at compiling comprehensive, updated safety principles, requirements and acceptance criteria applicable in Germany in a form that allows the authorities to verify levels of safety in compliance with state of the art in science and technology. The project was abandoned in the middle of 2003, as it encompasses areas of competence which could not be dealt with in the scheduled period or which fall exclusively within the

competence of the executive. Nevertheless, work on completion and updating of sublegal regulations at higher hierarchical levels has been started by the Federal Ministry for the Environment (BMU).

› The efficient exchange of experience and know-how between Western and Eastern Europe

Modernisation of sump filter design at units 1 and 2 of the Ukrainian Rovno NPP has been engaged, with a view to solving sump plugging problems in case of a primary break and improving the sump inlet conditions in the reactors' emergency core cooling system. Carried out using the "2 + 2" approach⁽¹⁾ proposed by the EC in 1998 with a view to increasing the effectiveness of activities performed within the framework of Tacis projects, the work demonstrated efficient transfer of know-how and practice. ■

(1) According to this approach, the operating organisation of an EC member state provides the Ukrainian operating organisation with support in implementing safety upgrade measures. In addition, the Technical Support Organisation of an EC member state provides support jointly with the Ukrainian State Scientific and Technical Center for Nuclear and Radiation Safety to the State Nuclear Regulatory Committee of Ukraine in assessing the proposed safety upgrade measures.



Bruno Lescœur

Senior Executive Vice President
Head of Generation & Trading,
EDF

Democracy calls for decision-making to be based on true, legitimate discussions and not on colliding emotions. This requires the information provided to the stakeholders to be drawn up in a way that allows balanced, in-depth understanding of stakes and views.

The debate on energy in France over the past eight months has moved forward based on contents reflecting the different views: MPs, elected local representatives, etc. This is definitely a step in the right direction, and it would make sense to include young stakeholders such as school and university students.

Further advances will come from the daily practice of debate. In this respect, France does not lack opportunities to involve stakeholders in decisions pertaining, for instance, to the European Pressurised Reactor, the siting of radwaste repositories or the interconnection of the European high-voltage grid. Because of their nature and size, nuclear projects will never become commonplace. Yet, operators are responsible for providing timely answers to a growing energy demand, and this is a tremendous impetus for pushing projects forwards. The improved quality of debate on projects should help them comply with tight schedules.



Nuclear Installation Safety Research: Stepping up cooperation in Europe

■ Safety assessment organisations like GRS and IRSN have long experience of bilateral cooperation programmes, notably with colleagues in Russia, the Czech Republic, Bulgaria, etc. Cooperation now stands at a crossroads as work to prevent and manage severe accidents intensifies. Case-by-case initiatives under the auspices of the OECD/NEA or EU are gradually turning into a permanent expert network capable of coordinating severe accident research policies across the European continent. Stronger synergies and the elimination of duplicate initiatives should facilitate the achievement of better results at lower costs.



As shown through the various contributions presented at the seminar called *Nuclear Installation Safety Research*, the current breakthrough rests not so much on technology but on the improved management of ongoing programmes, thanks chiefly to the setting up of a European network for research excellence.

For instance, as a network for the sustainable integration of EU research into severe accident phenomenology and management, Sarnet aims at far better identification of the experts working in this field, with a view to setting up a programme jointly managed and co-funded by the EC and each of the participant organisations. This shift from task-based to team-based management is fully in accordance with the principles of EC research policy. The challenge now consists in collecting sufficient finances to fund permanent research teams. Hereafter are some of the major programmes continued in 2003.

► Astec, a code for deciphering the sequence of severe reactor accidents.

As severe accident measures are taken more into account in the regulation of plants, there is a need for more validation of codes and a better understanding of uncertainties and their impact on plant evaluations. Originally developed by GRS and IRSN, the Accident Source Term Evaluation Code (ASTEC) was validated from February 2000 through July 2003. The programme, called European Validation of the Integral Astec Code (Evita), involved 19 partners from eight European countries plus JRC. The versions V0 and V1 of the code were successfully installed on the partners' platforms and, at the end of the project, more than 10 plant calculations on different types of NPPs (PWR, VVER) had been presented, with comparisons to other codes. Participating technical safety organisations thus contributed to the capitalisation of experimental results, making Astec a powerful research integration tool.

› **Cabri: understanding high burn-up and advanced fuel behaviour under reactivity-initiated accident (RIA) conditions.**

With increased UO_2 fuel discharge burn-up (from 52 GWd/t today to an expected 62 GWd/t) and the introduction of MOX fuel with a target burn-up of 52 GWd/t under consideration in French PWRs, the OECD Cabri-Water Loop RIA experiments are aimed at studying the high burn-up and advanced fuel behaviour (UO_2 and MOX) in reactivity-initiated accidents like control rod ejection, under representative LWR conditions, verifying the adequacy of the present safety criteria, assessing safety margins and establishing the technical basis for new criteria. The programme uses a research reactor designed for small-scale replication of complex or severe accidents. The Cabri project supports the integration of European and international cooperation, with a joint team doing the defining of the experimental programme, the pre-calculation of tests and the comparison to the experimental results.

› **Phebus: deepening knowledge of iodine chemistry.**

Placed under the supervision of OECD/NEA, the research programmes conducted using the Phebus experimental reactor located at Cadarache pursue a major reactor safety objective: gaining knowledge about the chemistry of iodine, a highly reactive substance with a complex behaviour. To allow predictions about iodine release to the biosphere in case of an accident, several phenomena must be understood. These range from fuel degradation and hydrogen production through to aerosol physics and iodine chemistry in the containment. In this context, the ISP-41 and ISP-46 programmes are part of an important research effort which involves numerous scientists in the definition of simulations, calculations, etc. The work performed provides a basis of sound experiments internationally available for code validation. It should help code users to know more about the degree of validation of the tools they use, and to draw the relevant conclusions from the calculations they perform. ■



Fridtjov Øvre

*Deputy Project Manager,
Halden Reactor Project*

Human factors and human reliability are crucial for the overall safety of nuclear reactors. With the support of 20 countries, the OECD Halden Reactor Project in Halden, Norway, runs experimental programmes on both fuel and material safety and reliability issues, as well as programmes to develop methods and measures to gather quantitative data usable in probabilistic safety assessments. Recent human reliability

experiments, including a high-fidelity simulator and licensed operators from Swedish BWRs have provided objective and subjective data to assess the performance of operators faced with difficult situations. As regards the complexity of an NPP control room, the experiments resulted in unexpected findings such as: the introduction of new technology often makes it more complex for operators to control the process, thus

lowering safety levels; procedure automation as such is not a performance enhancer, since it tends to make the operator become an observer instead of an actor, and the man-machine interface often needs to be redesigned to achieve better safety performance. The Halden-based methodology is still new, and we are only now working on how to turn statistical results into applicable changes.

Waste Management: Paving the way for underground laboratories

■ As a major issue for countries which operate nuclear facilities, safe disposal of high-level radioactive waste in geological formations has large-scale research programmes devoted to it, aimed at assessing the appropriateness of such formations as granite, salt or clay. Frequently sponsored at EU level (e.g. Benipa, Bambus II) or at international level (e.g. Decovalex), these large-scope, long-term programmes tend to involve technical safety organisations from various western, central and eastern European countries, intended to provide political authorities with reliable results so they can make decisions which will involve neighbouring populations over very long periods of time.



hydraulic and mechanical phenomena potentially implicated in radionuclide transport through rock. Some of the major research programmes and achievements outlined at the *Waste Management* seminar are summarised below.

› Experiments performed in hard rock (granite) formations

As part of the international Decovalex III project, an evaluation of the importance of thermo-hydro-mechanical couplings (THM) on the performance assessment of a deep underground storage design has been carried out. Over the past ten years, mathematical models to predict these phenomena have been developed, verified and validated against analytical solutions and laboratory and field experiments, within the framework of the Decovalex international project. In this context, the evaluation work revealed first that the effects of the couplings on thermal, hydraulic and mechanical phenomena are amplified by low rock mass perm-

In most countries, the present goal of research consists of preparing for the installation of underground laboratories by removing uncertainties about the behaviour of different formations used for final radioactive waste disposal, through experiments and model calculation. The work done in 2003 showed progress in understanding the thermal,

ability and second, showed that suction close to the canisters may be important in low permeability. Third, it brought to light the importance of accounting for all the THM couplings to achieve more realistic predictions of the failure of the rock mass.

› Experiments performed in clay formations

The design of an underground repository, in terms of drift spacing and repository size, depends on the thermal load that the rock and the engineered clay barrier can accept, which in turn depends directly on their degree of saturation. The ventilation experiment at Mont Terri (Switzerland) was performed to evaluate the in-situ consequences on the repository design and performances in consolidated clay rock formation of ventilation-induced desaturation/re-saturation. Based on results, hydromechanical modelling will help to completely interpret the water balances and identify the key aspects of the compacted clay's hydro-mechanical behaviour. Additionally, GRS participated in a heater experiment aimed at characterising the seal and host rock integrity under heat load. The GRS results showed that gas may be generated and released as a result of corrosion of metallic components, or microbial, thermal, or radiolytical degradation of organic components in the waste, backfill and seals, or in the host rock.

› Comparison between granite and salt

Co-funded by the national governments of the relevant organisations and by the Commission of the European Communities (CEC), the Bambus programme (Backfill and Material Behaviour



Dr. Margarit Pavelescu

Prof., Member of the Romanian Scientist Academy

Romania is in an unusual situation compared to most European countries, as its nuclear power construction programme is allowed further development. Increasing public awareness and involvement in the nuclear debate is hence a pivotal issue... and there is more than transparency at stake! First, beyond providing local communities and the public with information, we have to make sure that the data we issue are correctly packaged for each category of audience. With a view to improving the readability of our documents, we created a working group where the different stakeholders contributed to each document to make it didactic and easily understandable. Second, we need feedback from the different stakeholders to ensure that a certain level of public acceptance is reached and, if public opinion shows reluctance to the project, we must be ready to modify it to ease resistance. In this respect, participating in the Eurosafe Forum is a good opportunity to get an overview of the issues pertaining to stakeholder involvement in several countries and for useful exchange on the lessons learnt.

in Underground Salt Repositories) is aimed at assessing the long-term sealing potential of a salt repository for high-level radioactive waste. Bambus-II, the second phase of the project, is performed by a group of German, French, Dutch, Spanish and US partners. Its goal is to confirm and improve constitutive models used to predict the long-term evolution of backfill porosity and excavation-disturbed zones in and around disposal drifts.

› Assessment of bentonite as a near-field buffer in a granite spent-fuel repository

Geotechnical barriers are meant to reduce these detrimental effects by delaying and minimising the flow of water in the near-field of a repository. Because of its swelling properties, bentonite is considered as a material for the backfilling and sealing of emplacement galleries and boreholes. However, the behaviour of bentonite during re-saturation is a very complex phenomenon which may be influenced by hydraulic, mechanical, thermal and chemical processes. Scientists from Belgium, Finland, France, Germany, the Netherlands, Spain, Slovenia and Switzerland participated in the Benipa research project conducted between September 2000 and August 2003 within the Fifth Framework Programme of the EU, with a view to providing an integrated performance assessment of bentonite barriers as a buffer between radwaste canisters and the repository near-field. Moreover, GRS developed new conceptual models supported by experiments, which resulted in the creation of a data base for checking the new re-saturation models as well as the already existing models. ■

Environment and Radiation Protection: Innovative assessment approaches and support for policy-making

■ 2003 has been a busy year in the field of radiological and environmental protection, with important milestones in innovative projects related to remediation strategies for contaminated agricultural land, the implementation of ecological risk assessment to radioactive pollutants, the assessment of doses around nuclear facilities, terrestrial radioecological research and the management of radioactive material resulting from mining activities. Addressed at the Environment and Radiation Protection seminar, the three topics below presented some major achievements.

› Ecological risk assessment: transposing a field-proven approach in chemistry to radionuclides

Today, ecological risk assessment is an approach increasingly implemented in assessing the impact of chemical pollutants on the environment and, in particular, on non-human biota. Extensive data bases are thus available as a basis for policy making. As this approach is presently considered for radioactive pollutants, one of the major difficulties is the lack of data for chronic low-level exposure. The EC therefore funded a project named Fasset, aimed at providing - among other things - an extensive data base of radiation effects on non-human biota.

As a complement to health risk examination, the assessment of any risk to biota resulting from exposure to radionuclides is to be associated with different source-terms and environmentally released scenarios, exposure pathways and potential biological effects at different organisation-

al levels (from the cell to the whole body), estimations of no-effect values and finally, risk calculations as the ratio between predicted concentrations in the exposure source and estimated no-effect concentrations. In particular, the behaviour of pollutants in terms of bioavailability, bioaccumulation and biotransformation requires deeper understanding if appropriate protection policies are to be implemented. The set of experimental data needed will also contribute to answering the question of how and to what extent radionuclides and other stressors may affect different organisms and therefore change community structure, distinguishing direct (toxicity) or indirect (food-chain) effects.

› Assessment of countermeasures concerning food production and living in contaminated areas

The overall objective of the Strategy (Sustainable Restoration and Long-Term Management of Contaminated Rural,

Urban and Industrial Ecosystems) project is to establish a holistic framework for the selection of optimal remediation strategies for the long-term sustainable management of contaminated areas. A compendium, comprising datasheets for 101 countermeasures, was produced to provide decision-makers with criteria - constraints, effectiveness, feasibility, waste generated, doses incurred, costs, side effects, stakeholder opinion and practical experience - for evaluating different countermeasures applicable to food production systems and inhabited areas. This compendium was evaluated by the Farming Network and by the Strategy group members themselves from various perspectives as well as by technical experts, ethics specialists, philosophers, etc. It has been well received by national and international bodies and plans are currently being made for its further development under the direction of the IAEA/FAO and the EC. Some aspects, such as the diversity of agricultural lands throughout Europe (for example, some types of crops, such as Mediterranean olives and grapes, need to be better addressed), the type of contamination-generating accident, the management of long-lived radionuclides (e.g. caesium, strontium), the impact of countermeasures on the economy, the regions' image and products' reputation, etc. are still due to receive more attention.

➤ **Naturally occurring technologically enhanced radioactive material: not necessarily nuclear waste**

The acronym Tenorm summarizes solid substances which result from physical or chemical processes applied in mining or processing mineral raw materials (e.g. gas

or oil) or reprocessing mineral by-products and waste. According to the type of rock formation, such radionuclides as barium, calcium, strontium, radium, etc. are present alongside the main product. Furthermore, naturally occurring technologically enhanced radioactive materials often contain heavy metals and sometimes organic compounds. In Germany, essential progress has been achieved, allowing Tenorm to be re-used or dumped with other residual products and waste, if the specific activity does not exceed the limits defined in the German Radiation Protection Ordinance. This provision allows a reduction in the quantities of materials which must remain under the radiological protection system. Regarding the legal framework conditions for the re-use or disposal of Tenorm, the main problems to be solved during the licensing process relate to the superposition of the different legal aspects to be taken into account. ■



Iosif Bogdevitch

Professor, Director of the Belarusian Research Institute for Soil Science and Agrochemistry (BRISSA)

The remediation of Belarusian agricultural lands contaminated by the Chernobyl fallout provides a good example

of how democratic approaches help motivate the public by proposing acceptable solutions. During the months following the accident, the need to make rapid decisions and act quickly had not left much room for consultation. In the second stage of this long-term remediation process, we thus had to cope with two constraints: scarce financial resources and people who were tired of the consequences of the accident. The Ethos experiment, carried out with the help of French and other European partners, enabled some Belarusian farmers to take their future into their own hands at the same time as using any government help. The Ethos group did not bring any money, only knowledge, advice and friendship. Month after month, a trusting relationship was established, leading to satisfactory results: abatement of radioactive contamination of the soil and, in parallel, improvement of productivity.

The project is being extended to more farmers and a wider array of vegetables. We now have more volunteers than we can afford to provide with seeds or fertiliser! This shows public acceptance is about concrete action and tangible evidence rather than sermons or dictats.

Nuclear Material Security: Striving for the convergence of physical protection in Europe

■ As demonstrated by the contributions presented at the 2003 Eurosafe Forum's *Nuclear Material Security* seminar, the physical protection of nuclear material and facilities against malevolent acts represents a significant part of the activities carried out by nuclear security organisations all over the continent. From a security culture in nuclear facilities to the assessment of the potential radiological consequences of a sabotage attack against – for example – nuclear interim storages, a growing number of benchmarks and joint studies clearly symbolise enhanced integration of the moves towards the development of a European physical protection concept. The three examples below epitomize this trend.

› Enhanced physical protection of nuclear material and facilities: the case of the Czech Republic

The physical protection of nuclear facilities and nuclear materials in the Czech Republic is considered to be an integral part of nuclear safety. According to the Czech Atomic Law, the licensee bears the responsibility of physical protection of his facility and nuclear material and has to submit a safety report to the safety authority (SUJB) for approval, showing that the requirements to ensure physical protection are met.

The physical protection system for nuclear facilities relies upon a comprehensive set of measures: implementation of new detection systems with high reliability and detection probability; increased delay time for mechanical barriers through the redesign of the isolation zone, stop-road equipment, safe doors, bullet-resistant windows, vault-type rooms and safes etc.; sophisticated access-control sys-



tems based on biometric detection; video capture systems using CCTV cameras only, etc. This physical protection system is strengthened through cooperation with the police and intelligence services; police surveillance of the nuclear facility's vicinity; close limitation of access to nuclear facilities; temporary deployment of ground-air missiles. The IPPAS mission performed by the IAEA at the Czech government's request confirmed the high level of physical protection at nuclear facilities, as well as the legislation covering physical protection as a whole.

› Nuclear materials: control and accountancy. Assessing good practice in Russia and France

In the framework of the EU Tacis programme, VNIIA, IRSN and IPSC ⁽¹⁾ exchanged information on the state control and accountancy systems for nuclear materials (NMC&A) in Russia and France. This joint study of state systems was designed

to support the Russian Federation in the development of instrumentation for NMC&A. Items such as accounting features, data registration, document preservation, quality assurance, facility NMC&A organisation, and the conditions of exercise of state control, etc. were screened in a comprehensive approach. Beyond the management of nuclear materials in both countries – which is in many ways similar, particularly in terms of technological options and objectives – the study confirmed many features of good practice common to both systems.

► Towards a European physical protection concept

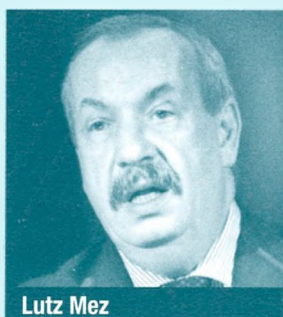
The Design-Basis Threat (DBT) methodology reflects a broad consensus among IAEA member states around the design and evaluation of the physical protection of nuclear material and facilities. Due to the potential for individuals who could perpetrate malevolent acts to move from one EU member state to another without restrictions, the threat evaluation inside



the Union tends to become less and less dissimilar. International guidance in establishing a physical protection concept is presently provided by the Security Fundamentals and the existing technical documents. Its objectives comprise three lines of defence against malevolent acts: prevention of any interference caused by malevolent acts; response to such interference acts and recovery of control; emergency procedures to mitigate the consequences of loss of control.

Sharing experience among the European Union's physical protection experts could lead to a better understanding in the field of nuclear security. Projects like the European Pressurised Reactor (EPR) provide a technical basis for harmonisation not only of safety design requirements, but also of physical protection concepts, though the final decision clearly remains a political one. ■

(1) All Russia Research Institute of Automatics (VNIIA), Institut de radioprotection et de sûreté nucléaire (IRSN) and JRC-Institute for Protection Security Citizen (IPSC).



Lutz Mez

Senior Associate Professor at the Free University of Berlin, Executive Director of the Energy and Environment Institute, Deputy Director of the Environmental Policy Research Centre

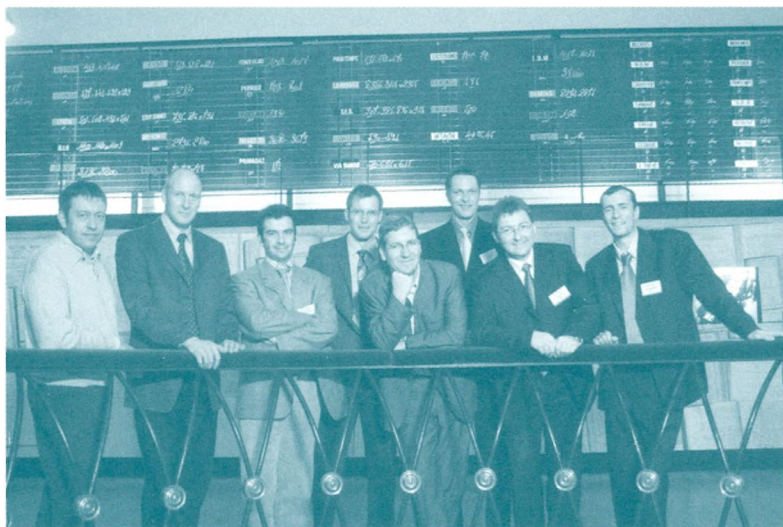
Independent experts' access to critical information is a prerequisite to more democracy in decision-making processes, since it is a way to provide the public concerned by a project with balanced, unbiased information and expertise. In this respect, the various EU member states seem to have different practices, with the Scandinavians showing more openness to independent expertise.

Obviously, independent expertise needs a financial basis. In the field of social ecology, an interesting initiative from the German government saw the setting up of the "Sozialökologische Forschung" programme with funding of M€ 48 over 7 years with the goal of stabilising those ecological research institutes which are not state financed, helping them to cooperate and attract young researchers. Environmental associations also make a contribution to

financially supporting ecological research by commissioning reports, but Europe still does not have an American-style fund-raising culture. It is a political process where there must be resources for non-institutional organisations to work on issues. The eventual result will be that non-institutional bodies will institutionalise at the same time as governments open up.

STAFFING PROJECT → A GRS-IRSN TEAM TO ENVISION THE COMMON FUTURE OF TECHNICAL SAFETY ORGANISATIONS

■ With a view to strengthening their long-term partnership through mutual personnel assignments, GRS and IRSN offer staff members below 40 years of age a chance to build a joint team tasked with cooperation projects. The enrolment conditions are: being fluent in English, working in a major field of cooperation between GRS and IRSN, and being keen to operate in the partner country for some time. The team consists of experts from both corporations' major competence areas: reactor safety assessment, reactor safety research, fire safety research, radiation protection, waste management and nuclear material security. Team members told the Eurosafe Tribune what they expected from this GRS-IRSN joint initiative.



The GRS and IRSN joint-team members enjoy the atmosphere of the 'pit' at the Paris Stock Exchange, where The Eurosafe Forum 2003¹ was held.

Vincent Besson (32) is an expert in thermal hydraulics and fuel thermomechanics; Nicolas Brisson (28) dedicates himself to radiation protection and radon in particular; Mathias Bürgener (31) focuses on the evaluation of notifiable events; Jörg Kaulard (37) is a radiation protection specialist; Sven-Michael Keesmann (32) devotes himself to numerical analysis of waste disposal; Hugues Prétrel (37) works on fire engineering and combustion; Nils Reinke (40) specialises in thermal hydraulics and severe accident codes whereas Christophe Serres (37) is tasked with scientific calculation in waste disposal safety.

As members of the joint team set up by GRS and IRSN, they were invited to participate in the Eurosafe Forum held in Paris on 25 and 26 November. In answer to a few questions from the Eurosafe Tribune, they expressed views...

› on how they came to work for nuclear technical assessment

The reasons for being attracted by nuclear safety and radiation protection differed widely among interviewees. Answers thus ranged from applying one's core speciality – e.g. thermo-hydraulics – to the nuclear field through a step-by-step process, to seizing the opportunity to work on a critical issue such as radwaste disposal, getting deeper knowledge about the operation of NPPs or building trust in organising nuclear safety. They had one shared goal – to develop skills and perform highly qualified work with suitable means at their disposal – and one shared philosophy – to be unbiased and promote neither the development nor the phasing out of nuclear energy.

› on why they decided to join the GRS-IRSN initiative

Nuclear issues inevitably extend far beyond national borders, decisions are increasingly made at EU level, and markets are globalising... The interviewees felt impelled to accompany this trend by working in transnational teams, trying to understand the different regulatory frameworks, learning from one another and broadening their own perspectives. In this respect, they were glad to see that issues are naturally discussed at a European level at the Eurosafe Forum. To them, a merging between GRS and IRSN would be a powerful symbol, as a transnational organisation with a big future and a significant budget. It would strengthen the synergies already implemented at a technical level and help identify and address safety issues with a long-term view.

› on the significance of cooperation

The team members' goal is by no means collaboration for collaboration's sake. They know that successful European initiatives like Airbus draw on a strong political will, long-term perspectives and efficient work-sharing. What they strive for is "concrete stuff": greater efficiency, well identified goals and a framework within which to prepare and manage projects. This is a very practical approach based on personal, peer-to-peer relationships. It begins with an in-depth understanding of both organisations, of who does what at GRS and IRSN.

› and on democratic approaches

The topic of the 2003 Eurosafe Forum *Dare More Democracy in Decision-Making* – directly relates to the interviewees' concerns, since making information available to the public is a major motivation for choosing to develop nuclear expertise. To them, the challenge is to inform the public upstream of the projects in a way that enables each citizen to make his/her own judgement. Interviewees say that education is far more needed than information: it is a long-term process necessary for there to be a shift from emotional to rational decisions. Today, NGOs inform the public intensely and are more trusted than scientific organisations. The GRS-IRSN joint-team members are therefore resolved to work on improving TSOs' public image and credibility. ■



José I. Villadóniga Tallón

Technical Director
for Nuclear Safety
Consejo de Seguridad Nuclear.

In Spain, we are at the stage of information rather than public participation. We do a lot of communications: CSN⁽¹⁾ has an information centre; the Council's decisions are made public over the Internet; issues that catch public attention are widely circulated, in particular to NGOs. In addition, the government organised meetings near NPPs. Whereas a great number of modifications are planned on operational Spanish NPPs and several dismantling or spent-fuel management projects are being discussed, our present challenge is to shift from public information to public participation. We are working with the NEA in the Forum on Stakeholder Confidence where we discuss how stakeholders should be involved in the decision-making process. We benefit from the experience of participating countries, in particular the Scandinavians, who have succeeded in building a high level of trust in governmental organisations and staunch relationships between nuclear businesses and local communities.

(1) Consejo de Seguridad Nuclear (Spanish Nuclear Safety Council) Organisation in charge of the control and assessment of nuclear safety and radiological protection

VENUES & WEBSITES

UPCOMING MEETINGS

- *29-31 March 2004. Luxembourg, Brussels.*
Euradwaste, 04: 6th European Commission Conference on the Management and Disposal of Radioactive Waste.
Organised by the European Commission.
- *27 April 2004. Sellafield (UK).*
BNES Seminar on Nuclear Reactor Decommissioning.
Organised by the British Nuclear Energy Society.
- *4 May 2004. Paris.*
Symposium: Radioactive contamination: what actions for site remediation?
Organised by ASN (French Nuclear Safety Authority)
- *16-20 May 2004. Dubrovnik.*
5th International Conference on the Nuclear Option in Countries with Small and Medium Electricity Grids.
Organised by the Croatian Nuclear Society.
- *23-28 May 2004. Madrid.*
11th International Congress of the International Radiation Protection Association (IPRA).
- *14-18 June 2004. Berlin.*
PSAM 7-ESREL, 04: International Conference on Probabilistic Safety Assessment and Management.
Organised by the International Association for Probabilistic Safety Assessment Management.
- *15-16 June 2004. Manchester.*
2nd Conference on Managing Nuclear Liabilities: The NDA - Making plans a Reality.
Organised by the British Nuclear Energy Society and Institution of Nuclear Engineers.

- *27 June-2 July 2004. Moscow/Obrninsk.*
International Conference on Fifty Years of Nuclear Power - the Next Fifty Years.
Organised by IAEA.
- *06-10 September 2004. Aix-en-Provence (France).*
Ecorad 2004: The Scientific Basis for Environmental Protection Against Radioactivity.
Organised by IRSN.
- *20-24 September 2004. Vienna.*
IAEA General Conference.
- *19-22 October 2004. Prague.*
VVER - 2004: Experience and Perspectives.
Organised by the European Nuclear Society, Czech Nuclear Society.

A FEW WEBSITES

- **Papers issued by the OECD/NEA Expert Group on the Process of Stakeholder Involvement in Radiation Protection Decision Making (EGPSI).**
<http://www.nea.fr/html/rp/egpsi.html>
- **US NRC Communications on Facilitating Stakeholder Involvement.**
<http://www.nrc.gov/public-involve/stakeholder-involvement.html>
- **Stakeholder Involvement I (International Conference on Geological Repositories: Political and Technical Progress).**
http://www.congex.com/sth-conf-03/files/Session_2_Stakeholder_Involvement_1.pdf

The next EUROSAFE Forum
will be held in Berlin
on 8 and 9 November 2004

The sixth issue of
the EUROSAFE Tribune will be
devoted to the «Man, Technology
and Organisation (MTO)» concept

EUROSAFE Tribune is a periodical from the EUROSAFE Forum. **Editorial Committee:** Jean-Bernard Chèriè, IRSN – Benoît DeBoeck, AVN – Ulrich Erven, GRS – Mikko Kara, VTT – Peter Storey, HSE – Christer Viktorsson, SKI – José I. Villadóniga Tallón, CSN. **Coordination:** Horst May, GRS – Emmanuelle Mur, IRSN. **Credits:** Thomas Gogny, IRSN. **Writer:** Jean-Christophe Hédouin. **Production:** Euro Rscg Publishing. **ISSN:** 1634-7676. **Legal deposit:** March 2003.

The French, German and English versions of the Eurosafe Tribune will be available on the Website www.eurosafe-forum.org.

INSTITUT DE RADIOPROTECTION
ET DE SÛRETÉ NUCLÉAIRE (IRSN)
B.P.17
F-92262 FONTENAY-AUX-ROSES
CEDEX

GESELLSCHAFT FÜR ANLAGEN-
UND REAKTORSICHERHEIT (GRS) mbH,
SCHWERTNERGASSE 1
D-50667 KÖLN

FOR FURTHER INFORMATION:
www.eurosafe-forum.org

E U R O S A F E

GRS

IRSN

*Towards Convergence of
Technical Nuclear Safety Practices in Europe*