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Editorial

The first few months of 2003 have been busy at Arius. A major task was the preparation of the SAPIERR proposal for the EU 6th Framework programme. This was developed from the original EPSRR expression of interest circulated last year. SAPIERR was submitted to the EC at the end of April and is described in an article in this issue of the Newsletter. We have also been following up the EU position on regional facilities, most recently raised by the wording of the radioactive waste directive, which was passed by the commission but has now to be ratified by the Members States. The whole 'nuclear package', of which the waste directive was a part, has caused much argument across Europe and our Topical Article for this issue looks at the current status of national responses. Another major item in this Newsletter concerns the regional aspects of finding safe disposal solutions for disused radiation sources. This year, there is much activity at the IAEA aimed at identifying safe management solutions for these items. On a small scale, disposal of spent sources raises many of the same multi-national issues for 'small user countries' as do fuel cycle wastes, but the risks of doing nothing with disused sources, dispersed among numerous users in many countries, have already been shown to be considerable. We wish you interesting reading!

*Neil Chapman
Baden*

Arius Internal News

Piero Risoluti elected as first Arius President

Since its foundation, Arius has operated without a President, wishing to become more firmly established before filling this important position. At the February Assembly of Members (see below), Dr Piero Risoluti of ENEA, the Italian government organisation responsible for nuclear matters, was unanimously elected to be our first President. Piero has extremely broad experience in nuclear research and the field of radioactive wastes, and was recently responsible for

the Italian national waste management programme (see the Topical Article by him in the last Arius Newsletter). He brings considerable energy and enthusiasm for regional and international solutions into the Presidency and he will undoubtedly be extremely active on the international scene during his term of office.



First Ordinary Assembly of Members

The first Ordinary AoM since the foundation of Arius took place in Baden on February 20th. It was attended by representatives of Colenco, ENEA, PURAM and Obayashi Corporation, as well as observers from DECOM (Slovakia) and the World Nuclear Association.

The meeting was principally concerned with formal organisational matters such as auditor's reports, committee elections and budget review and approval, and the Members also received a report on the year's activities and a forward look into plans for 2003.

An important matter arising was the response received from the office of the EC Vice President Loyola de Palacio to a letter on European regional initiatives sent by Arius in December last year. Its main statements were that the Commission encourages closer coordination between Member States, but that, "because of the political sensitivity of the issue" the word "regional" is avoided in the text of the Directive itself. The opinion given was that Member States "need to play a lead role in initiating further cooperation". Arius was recognised to be "an important initiative that is receiving active support from a number of bodies in several European countries" and it was acknowledged that the organisation could be "a very useful catalyst" in promoting increased collaboration. Although the response was generally supportive, it was felt not to go far enough toward foreseeing pilot studies. Consequently, after the AoM, Arius sent a follow up

letter to the Vice President's office, excerpts from which are reproduced below.

Dear Mr Perez Montes,

Thank you for your reply of February 2nd to our letter to Vice President de Palacio concerning regional solutions for radioactive waste storage and disposal. We have since held an Assembly of our Members and had chance to discuss your response further.

We are well aware, as are all our Members, that each country is responsible for developing a solution for its own wastes. However, your letter and the recent Directive both accept that this can involve regional collaboration. We are also fully aware that regional solutions to this problem are sensitive – in some countries. Your letter suggests that you regard this matter as too delicate for the European Union to think about constructively.

.....

We are firmly of the view that the developing structure of the FP6 programme (advertised calls and evolving proposals) reflects too strongly the national interests of a few larger programmes who, because they have an unjustified fear that regional solution discussions in Europe will damage or delay their programmes, believe that the issue should be completely excluded from the programme. We believe, on the other hand, that the Commission has a direct responsibility to take an active role to ensure the requisite breadth and balance of approach. Europe will be poorly served by another five-year programme that fails to address, comprehensively and in a timely fashion, one of the key issues in nuclear waste safety and security.

As a representative association, our efforts are confined to seeking opportunities within the existing, complex organisational framework of the Commission's programmes to ensure that this important issue is not further relegated and neglected.

.....

We would be grateful if you could provide us with positive advice that moves this matter forward and if you would again bring this inconsistent and worrying gap in broad European strategy to the attention of Vice President de Palacio.

Yours sincerely

*Dr Charles McCombie Professor Neil Chapman
Executive Director Programmes Director*

Arius joins World Nuclear Association

At the beginning of 2003, Arius became a member of the World Nuclear Association (WNA). This organisation was created when the long standing Uranium Institute in London was renamed and its mission expanded to provide a global forum for debate on nuclear energy and to provide a reliable information service on all associated issues. The WNA represents many companies and organisations

in the global nuclear energy industry (www.world-nuclear.org). Arius is now a participant in the WNA Waste Management and Decommissioning Strategy Group. This provides an opportunity to interact with waste management organisations from many countries and also to contribute to the efforts of the WNA that are aimed at communicating with the public on waste issues.

Arius was represented at the Working Group meeting in London in January and will attend the next meeting in Moscow in May.

SAPIERR proposal for a pilot study on European regional repositories

The proposal for the SAPIERR project (Support Action: Pilot Initiative for European Regional Repositories) was submitted to the European Commission at the end of April, for consideration as part of the 6th Framework Programme. The project was developed by Arius, working together with Decom, Slovakia (mostly owned by Slovak Electric), who submitted the proposal. This initiative has been welcomed by potential participants in numerous EU Member States and Associated countries. The essence of SAPIERR is summarised in below. It is, of course, a timely initiative, in the light of the Directive issued by the European Commission on implementation of waste repositories, which implies that regional facilities can help small countries satisfy requirements.

Objectives of the proposed project: Smaller nuclear power programmes in the expanded EU may not, individually, have the resources or the full range of expertise to build their own repositories for long-lived radioactive wastes. For countries that could potentially implement national projects, there are also environmental and economic advantages in co-operation. Even larger EU countries that have decided to have purely national facilities may be interested in providing their knowledge and advice to a grouping of smaller countries looking for an environmentally and economically optimised shared solution for disposal. The prospect that these countries could work together to explore the possibility of regional solutions is raised in the draft of the EC radioactive waste Directive. Such solutions will raise new trans-national issues of safety and governance, not so far addressed by national programmes in the European research area: nuclear security, radiological safety for multi-user repositories with diverse waste types, national and European public acceptability, trans-boundary waste transport, national and European economics, national and international law.

The challenges facing potential implementers of regional facilities will obviously be even greater than those being tackled by purely national programmes. Accordingly a gradual approach is necessary with questions of specific siting being first addressed in follow-on projects. The present proposal is a pilot initiative intended to help the Members States and Associated Countries, as well as the EC itself. It aims establish the boundaries of the problem and collate and integrate available information in sufficient depth to allow potential regional options to be identified and

the resulting research requirements to be scoped. The project will bring together Member States, Candidate Countries and Associated States wishing to explore the feasibility of regional European solutions. The specific objectives are to:

- develop a collaboration framework and a comprehensive database for regional waste management in the EU
- identify amounts, types & times of arising of relevant wastes
- identify possible concepts for European regional storage & disposal
- identify the main safety & governance implications raised by these concepts
- examine whether there are new, trans-national research and development requirements
- develop strategy options to explore the concept/options further
- propose mechanisms for developing strategy options & research and development needs in future EU programmes.

An important overarching objective is to ensure that considerations of regional repository concepts in the EU proceed in harmony with national programmes. It is important that these two strategies are understood as complementary approaches intended to ensure that safe and secure geological disposal is ultimately available to all members of the enlarged European Union. The working Group proposed should include members from all EU Member States and Candidate Countries that have a direct interest in exploring regional solutions. Regular contact and information exchange is, however, also foreseen with those EU Member States that have committed by law or in their national policies to the implementation of purely national storage and disposal facilities.

Relevance to the objectives of the Euratom programme: The general objectives of the Euratom Work Programme 2003 in radioactive waste management are "to establish a sound technical basis for demonstrating the safety of disposing spent fuel and long-lived wastes in geological formations and underpin the development of a common European view on the main issues related to the management and disposal of waste". The proposed initiative on regional repositories relates directly to both these objectives since:

- a) for numerous smaller countries safe geological disposal may be achievable only through regional cooperation;
- b) the task of implementing shared repositories will bring new and challenging tasks in technical and societal areas, which must be prepared for; the most difficult issues may well be societal; however, the project will also examine whether new technical issues need to be addressed when considering regional solutions;
- c) it is important to ensure that national and regional repository development programmes are viewed throughout the Union as complementary and not

competing approaches to ensuring safety and security.

This SSA will also include in its scope continuing and close collaboration with participants in the Network of Excellence that is foreseen for national programmes.

The activities proposed are original and have already been demonstrated to be of great interest to a range of Member States and Candidate Countries and Associated States. These include members of the Arius Association (from Belgium, Italy, Hungary, Bulgaria, Japan and Switzerland) and specific interest in participating has been already registered from additional organisations in Slovenia, Lithuania, Latvia, Czech Republic, Norway, Slovakia, and Romania. No specific initiatives to study the option of regional disposal facilities have been performed in the EU. The Memorandum attached to the recent EC Directive on disposal does, however, point out the potential value of this option.

Potential Impact: The potential impact in Europe is enormous. Without regional repositories, 30-40 geological repositories for HLW, spent fuel or other long-lived wastes will be needed in the enlarged EU and the surrounding countries. Technically, far fewer facilities would suffice. Assuring the radiological safety and nuclear security of Europe, as a whole, is only likely to be possible if shared repositories become available in the future. The huge economic savings achieved by pooling resources can be used to ameliorate environmental conditions in the participating countries, and in particular in those willing to be hosts. Community support - both financial and strategic - is essential for success. Small countries using nuclear power or other nuclear technologies producing long-lived wastes may experience greater acceptance of these activities if the public observes that a potential safe and affordable route to a geological disposal facility is being explored. A further important issue concerns the security of all radioactive wastes, including spent sealed sources, in countries without appropriate facilities for safeguarding these.

For those countries that have formally decided on a purely national approach, contact with the working group participants will provide an opportunity to make this position and the reasons for it clear to all. If/when regional repositories become a reality, countries other than those currently actively involved will certainly be interested in how such solutions can be implemented technically, socially, economically, legally and politically. In other parts of the world (East Asia, South America, Africa), the regional concept is going to prove equally valuable. By initiating studies, the EU could assume a leading role on the world stage and provide advice worldwide to other areas planning similar solutions.

Organisation of the project: The proposal is jointly submitted by two participants, Decom and Arius, with the former domiciled in Slovakia (a Euratom Associated State) and the latter in Switzerland (which will become an Associated State). Arius already has members from Belgium (ONDRAF), Bulgaria (Kozloduy NPP), Hungary (PURAM), Italy (ENEA) and Switzerland (Colenco AG). In addition, commitment to

join a working group has already been expressed by further organisations in the countries mentioned above. Representatives of all of these organisations will participate in the working group meetings and the international symposium proposed. Invitations will also be extended to other Member States and Associated Countries.

The specific data collection and analysis tasks will be organised and in part performed from within Decom and Arius. Each member of the working group will nominate a representative who will liaise the managing participants and who will provide the required national input data. Significant personnel resources, which are not specifically included in the present proposal, are represented by the time of these national working group participants. Each participant organisation will be required to nominate a representative who will provide national data, advise the project staff and comment on strategy and findings. Moreover, the base programme of the Arius Association will directly complement the work undertaken under the SSA.

Work plan: The project involves activities in the following areas:

1. The gathering and analysis of data and views from countries interested in regional solutions.
2. The identification of options and scenarios for regional co-operation.
3. The development, together with participating countries, of possible future European RTD programme strategies that would explore allow these options and scenarios to be explored in the future.
4. Discussion of the findings with participating national organisations and with EC staff.
5. The dissemination of progress information to all interested parties throughout the project and on the overall findings at the completion of the project.

These main components together with the project management define six Work Packages.

The information gathering will be carried out by Decom and Arius. The work will be steered and informed by a Working Group comprising representatives of the interested countries. Information analysis will be performed by Arius and the results will be reviewed and agreed by the Working Group. Based on these findings, concepts and scenarios for regional solutions will be identified. These will be used as a basis for identifying future research and development needs and scoping future EC programme strategies to meet them. The objective is to prepare the ground for an in-depth exploration of the feasibility of European regional solutions for specific scenarios and cases. The Working Group will contribute to, and again will review the options and scenarios developed. The project team and members of the Working Group will discuss with EC staff strategies to ensure compatibility with current and future policy positions.

Conclusions and Outlook: The wide interest aroused by the proposal demonstrates that the topic of regional repositories is of major strategic interest in Europe. Arius contacts elsewhere in the world indicate that this interest can easily be expanded globally. The support required from the EU at the present pilot stage is modest in absolute terms and tiny when compared with the huge investments still being made in national disposal programmes. Accordingly, the arguments in favour of the EU taking some positive actions to explore the issues affecting regional repository concepts seem overwhelming. Arius members, as well as the numerous other supportive countries in Europe, will await with great interest the conclusions reached by the experts and the staff officials who will be involved in reviewing the submitted proposal.

International News

Spent radioactive sources: the need for multinational cooperation

Although the debate on radioactive waste disposal often focuses on the spent fuel and high level wastes from commercial nuclear power production, there are other waste types that can also represent a safety and security hazard if they are not properly managed and disposed of. A very important example of such a case is represented by the sealed radioactive sources that are used throughout the world for medical, research and industrial purposes. These can still be highly radioactive even after the radioisotopes they contain have decayed to a point where the source is no longer usable for its designed application. Worldwide, there are numerous cases where spent sources have simply been put aside, without properly controlled storage, sometimes in exposed or easily accessible locations.

In the past, there have also been examples of spent sources being disposed of illegally, to avoid the high costs of proper management, or being stolen for their scrap metal value. In 1987, the most tragic case, in Goiana, Brazil, led to hundreds of people being contaminated with radioactive Caesium and to 5 people dying. Recently, the fearsome prospect has been raised of terrorists using stolen sources to make radiological dispersion devices or "dirty bombs". In March 2003, the IAEA held a conference to address this security issue. The conference was chaired by the US Secretary of Energy, Spencer Abraham, who at the opening already committed the US to supporting a "Radiological Security Partnership". The initiative aims to help countries track their sources, to keep these under control, and to prevent illegal trafficking in radioactive sources.

The most immediate challenge is to ensure proper tracking and safe and secure storage of the sources. The ultimate challenge, however, is to find safe disposal solutions for the radioactive materials they contain. Since the industrialised countries that supply sealed sources to others around the world will normally need to have access to disposal facilities,

the return of all sources to the manufacturer would be sensible. This has been done in the past and is recommended today. However, the labelling of such returned sources as "radioactive waste" has led to some legal and political problems, owing to the tendency in some countries to ban or resist all such imports.

Another solution is to ensure that all countries have national disposal facilities that are suitable for spent sources. Some sources, however, are so radioactive or long-lived that near surface disposal is not sufficiently safe. A deep geological repository, easily capable of providing the required level of isolation for longer-lived sources (such as those containing Radium) will be available in some countries for other wastes (in particular those with major nuclear power programmes). Co-disposal of sources in such repositories is clearly a sensible solution for these countries, but many other countries do not foresee a requirement for a deep repository (e.g. if they have no nuclear power programme). A less complex disposal approach that can provide sufficient safety is being studied with the support of the IAEA. This is disposal in boreholes drilled from the surface to a depth of a few hundred metres. Properly designed and managed, this technology may be suited for providing a safe and affordable disposal route in developing countries, such as the numerous African States that use sealed sources. South Africa has played a leading role in developing the concept for use by itself and its neighbouring countries.

Another approach might be to ensure that proper disposal facilities are available even to countries that do not have the technology or the resources to implement national disposal projects. This implies the development of regional or multinational facilities. A number of countries each with only a small inventory of spent sources could agree to share a repository or a borehole disposal facility situated in one volunteer state. A larger country with significant volumes of waste requiring deep disposal might agree to help developing countries. These are of course, the same basic scenarios that might lead countries with small nuclear power programmes to cooperate in regional or multinational disposal projects.

The potential for regional initiatives to ease the security hazard of orphan sources was referred to directly by Secretary Abraham at the IAEA Conference mentioned above. He stated that the USA is "prepared to work with other countries to locate, consolidate, secure, and dispose of high-risk, orphan radiological sources by developing a system of national and regional repositories to consolidate and securely store these sources". Given the direct relevance of this statement to the core mission of the Arius Association, contact is being taken to the USDOE to explore the possibility of obtaining specific support. In addition, Neil Chapman will be working with a technical group on the final draft of the IAEA report on 'Disposal Options for Disused Radiation Sources' in Vienna later this month.

Multinational repositories remains topical at international meetings

During this calendar year the topic of multinational or regional repositories will be addressed extensively, both within the broader framework of international conferences and at meetings specifically dedicated to the subject.

At the 10th International High-Level Radioactive Waste Management Conference in Las Vegas, USA (March 30th - April 3rd, 2003) a session was devoted to "Avoiding reinventing the wheel - lesson learned from international programs". The session included a paper by Neil Chapman and Charles McCombie on regional and international solutions. This led to an active discussion, in which both the practical advantages of shared solutions and the societal challenges associated with promoting these were recognized. The exchanges were especially interesting owing to the presence of representatives of the Oskarshamn community in Sweden, a potential siting area where concerns have been expressed that discussions on international solutions might hinder national progress.

In fact, as reported in *Nuclear Fuel* on April 28, 2003 (Vol. 28, no. 9) this potential problem was given a higher profile at the annual conference of SKB, the national implementing body in Sweden. A Swedish member of the European Parliament asserted that a Swedish national repository might be compelled to accept waste from other EU countries. This assertion was made despite the statement to the contrary by an EU official and despite the fact that Swedish law prohibits this. Nevertheless, the issue still gives rise to concern in potential siting communities.

Arius is, of course, extremely concerned that our work on regional solutions is not misused by anyone to encourage unwarranted worries in national populations or local communities. Although we firmly believe that shared repositories must become a reality in the future, Arius emphasises, whenever the opportunity arises, that:

- only countries and communities that voluntarily accept a hosting role should ever enter any considerations for regional solutions;
- the European Union cannot and will not try to impose a regional repository on any of its Member states;
- Sweden (and Finland and France) have firm laws against the import of radioactive wastes;
- Sweden is already making a major contribution towards helping solve the global disposal problem by advancing the technologies needed to assure safety and by showing, at a national level, a sound approach to consensus siting.

By making these positions clear, we hope to ease tensions in Sweden.

It is clear that Swedish concerns over the issue of multinational repositories are not shared by all countries or by all international organisations. This is clearly illustrated by further occasions on which

discussions on the topic are planned. A good example is the Technical Committee meeting foreseen to be organised by the IAEA in September 2003. This meeting will discuss the draft report "*Developing and Implementing Multinational Repositories*", which was prepared in 2003 by an IAEA Working Group that included an Arius representative. This meeting will review the report and make proposals for revisions as well as recommendations on how the IAEA should continue to help those Member States interested in shared disposal solutions.

Another meeting with emphasis on international disposal prospects will take place in May 2003 under the joint auspices of the US Academies of Science and the Russian Academy of Science. This is an international seminar on "*Problems of Managing Spent Nuclear Fuel and Selection of a Site for its Storage*", which will take place in Moscow with an associated visit to the Krasnokamensk site. Charles McCombie, at the invitation of the National Academies, will present a paper on European siting experience. Russian participants will present their concept for an international repository at Zheleznogorsk in Siberia or Krasnokamensk in the Baikal region.

Towards the end of the year, the major IECM conference on Waste Management and Environmental Remediation will take place in Oxford, UK and this will also include discussions on multinational storage and disposal. An Arius paper reporting on progress in this area has been accepted for presentation. We hope that a major part of the positive developments to be reported will focus upon EU attention to regional concepts and the SAPIERR proposal, described at length elsewhere in this Newsletter. Finally, looking ahead already to 2004, the organisers of the huge Waste Management 2004 conference that will take place in Tucson, USA, have proposed that a full session be devoted to presentations and discussions on multinational disposal solutions.

The meetings mentioned do not, in fact, cover all of the potential opportunities for provoking discussion on multinational concepts. For example the Global Nuclear Fuel Cycle conference of the American Nuclear Society in November 2003 is intended to include a session on International Spent Fuel Storage projects, following the success of a similar session at the 2002 conference. Limited time and resources will prevent Arius participation. However, it is gratifying for Arius members and staff to see that a topic that was only recently widely regarded as too controversial for discussion is now increasingly being assessed across the world in an open and rational manner.

Developments around the world

This item notes briefly waste disposal programme developments around the world that are relevant to the multinational repository concepts of Arius. The most relevant developments concerning multinational disposal are, for many countries within western, central and eastern Europe, connected to the SAPIERR initiative of Arius, together with Decom

Slovakia. Below are news items from some other countries.

Kazakhstan: The government in this country has suggested that a safe repository for low-level wastes (LLW) could be constructed and operated using financing provided by countries that could send such wastes to Kazakhstan. One obvious candidate for such a transfer would be Austria, which, after its decision not to operate nuclear power plants, there are still several thousand drums of LLW that must be safely disposed of. As might be expected, the proposal is generating intensive discussion in the Kazakh parliament.

Russia: In April, the Russian atomic energy minister, Alexander Romyantsev, re-iterated the resolve of the government to accept spent nuclear fuel from other countries. This is allowed under the law passed in 2001. This law permits storage and reprocessing; wastes, however, must at present be returned to the original owners. The government would like to have the option to dispose of the waste permanently in a deep repository. An overview of the current situation in Russia will be presented at the International Seminar of the US and Russian Academies of Science mentioned in the previous item.

USA: The view of the US government that regional approaches are one way to counteract the potential security threats posed by orphan spent sealed radiation sources is reported elsewhere in this newsletter. The USA is also showing a positive example in continuing its repatriation of research reactor fuels from several countries around the globe

Switzerland: At the end of last year, the Swiss national waste management agency, Nagra, submitted to the government a major project (*Entsorgungsnachweis 2002*), which is intended to demonstrate that Switzerland can safely dispose of its spent fuel, high-level waste and long-lived intermediate level wastes. The favoured host rock is a clay (the Opalinus Clay) that is found across Northern Switzerland. The most favoured region is north of Zürich, close to the German border. Reserve options for a national disposal facility are in crystalline host rock. In addition, the Swiss strategy keeps open the option of disposal of HLW in the scope of a multinational project. Since the deep repository is needed only around 2050, there is ample time for examining both national and shared repository options.

Australia: At the end of 2002, the Australian Science minister explicitly mentioned Arius in a statement which concluded that "*countries deriving benefits from nuclear technology should make their own arrangements to safely dispose of their nuclear waste.*" The irony of taking a local or partial view is emphasised, however, by the recent decision of the parliament in South Australia to ban the national low-level waste repository proposed by the Federal Government for that State - using the argument that the wastes are generated in New South Wales at the Lucas Heights research reactor. Equally ironic is that the same Minister has recently been in Argentina arguing that the suppliers there of a new research

reactor for Australia should be able to take the spent fuel back for reprocessing. These points illustrate that the NIMBY problem of siting is an issue of equal importance in national and multinational projects. The fact is that disposal, including the multinational disposal concept, is still a very topical issue in Australia, as shown by very recent discussions on national public radio there.

Italy - UK: Under agreements signed back in the 1970s, Italy is resuming sending spent fuel to the UK for reprocessing. An interesting aspect of this agreement is that the radioactive wastes are not required to be returned to Italy. At the time of the contract, the technical advantages of adding the small quantity of these Italian wastes to the large UK inventory that will also require disposal outweighed the political objections that, thereafter, led to a return of wastes clause in contracts.

South Africa: The town council of Cape Town recently decided to oppose siting of a new reactor, the PBMR, that uses new and improved safety technology. The grounds were that no final disposal solution is being proposed for the 800 tons of spent fuel that will be generated over the reactor's 40 years lifetime. South Africa currently has only one nuclear power station and this illustrates the difficulties of small nuclear power programmes in implementing expensive disposal projects for repositories that cannot be economic because of the limited inventories. South Africa, with some of the most suitable geology in the world for hosting a repository, could start a national screening programme and could also keep open the option for a regional or multinational solution.

Topical Article

Status of the EU "Nuclear Package"

by Anne Claudel

Under the 1957 Euratom Treaty, the European Union (EU) adopted extensive legislation on radiation protection, and provided for safeguards relating to the operation of nuclear installations and the use of nuclear materials. However, the setting of specific safety standards has remained the competence of individual Member States and their regulatory bodies. Numerous attempts have been made in past years to include nuclear safety within the EU's range of action, but none has met with the approval of Member States so far.

The European Commission (EC) argues that, today, it is no longer possible to consider nuclear safety from a purely national perspective. The Green Paper on security of energy supply adopted by the European Commission on 29 November 2000 raised the issue of the position of nuclear energy amongst other energy sources in the EU. The policy introduced in this paper has brought to light a new need for EU action in the nuclear sector, with a distinct sense of urgency as new Member States, five of them with (ageing) nuclear power stations, are due to join the Union in 2004. As early as June 1999, in preparation

for enlargement, the Cologne European Council asked the EC to ensure the application of high safety standards in Central and Eastern Europe. In December 2001, the Laeken European Council also requested the atomic energy experts of Member States to produce regular reports on nuclear safety, while maintaining close contacts with the Commission.

With this background, in November 2002 the EC proposed a Community approach to nuclear safety, with the following components:

- A 'framework directive' which will establish nuclear safety principles in the EU and regulate the management of decommissioning funds.
- A directive on the management and disposal of radioactive waste.
- A draft decision authorising the Commission to negotiate an Agreement between Euratom and the Russian Federation on trade in nuclear materials.

The proposals were adopted by the EC early this year and are expected to be discussed very soon by the European Council, as the Commission would like the legislation to be approved and implemented by the end of 2003. This timetable seems very optimistic, especially with regard to the reactions that have come from Member States so far. This article focuses on the first two directives, which have raised strong opposition in several countries.

Main issues: From a legal point of view, the proposals are based on Chapter 3 (Health and Safety) of the Euratom Treaty – more specifically on Articles 30, 31 and 32. The adequacy of this Chapter as a legal basis for the directives seems to be confirmed by a judgement rendered by the Court of Justice of the European Communities on 10 December 2002 (C-29/99 case), which states that "it is not appropriate in order to define the Community's competencies, to draw an artificial distinction between the protection of the health of the general public and the safety of sources of ionising radiation."

The *Directive on the safety of nuclear installations during operation and decommissioning* should introduce common safety standards and monitoring mechanisms, using the IAEA Convention on Nuclear Safety as a starting point. The verification system will focus on how safety authorities perform their tasks in each country and the EC is scheduled to publish a report on nuclear safety in the EU every two years.

The directive also aims at ensuring that sufficient resources are collected during the operating lifetime of facilities to cover their decommissioning costs, i.e. decommissioning operations as well as the long-term management of radioactive waste and spent fuel. It seems that some candidate countries, such as Lithuania, Bulgaria and Slovakia, may not under current arrangements have sufficient resources to pay for all the work needed until decommissioning is completed.

The directive states that these funds should be "duly established with their own legal personality, separate

from the operator of the installation". Besides setting standards for new Member States, this directive was prompted by the wish to prevent diverse national treatment of such reserves distorting competition in a liberalised EU electricity market. Some nuclear utilities, such as EdF, Eon or RWE, have access to the funds set aside to pay for future radioactive waste management or decommissioning – and these funds have directly or indirectly been used for acquisitions, giving these companies a distinct advantage over their competitors. Given the current fluctuations of the stock market, using those funds also represents a high-risk strategy. Initially, this point was due to be included in the directive opening the electricity market, debated in the European Parliament in March 2002. The Commission finally rejected the proposed amendment but promised to introduce proposals on decommissioning funds.

Based for a large part on the IAEA "Joint Convention", the *Directive on the management of spent nuclear fuel and radioactive waste* provides that Member States should establish, according to a pre-set timetable, a strategy to deal with all categories of radioactive waste – focussing on geological disposal as the safest method, given our present state of knowledge. For high-level and long-lived waste – destined for geological disposal – Member States are required to have identified a repository site by 2008 and have it licensed by 2018. In the case of short-lived low and intermediate-level waste – if this is to be disposed of separately from high-level waste – authorisation for operation of the disposal facility should be granted no later than 2013.

Repositories maybe be shared between countries, provided that exports of radioactive waste or spent fuel to other Member States are fully in compliance with existing EU legislation, principally Directive 92/3/Euratom regarding the supervision and control of waste shipments. Such exports should only take place to States with appropriate facilities that meet accepted norms and standards and, in the case of fissile material, are under adequate safeguards.

Furthermore, the Commission shall encourage co-operation between the Member States in common areas of research and technological development.

A wide range of reactions: The Commission's proposals, in addition to being justified by the overall need to unify practices in the context of an enlarged Community, seem supported by public opinion. As an example, the latest "Eurobarometer Report" (*Europeans and Radioactive Waste*, a survey conducted in autumn 2001 and published in April 2002: see Arius Newsletter No.2) provides insights into the way EU population feels about radioactive waste management. The respondents who are 'very worried' at the way radioactive waste is handled in their own country amount to 29% across the EU. However, results for individual countries vary widely, ranging from 11% in Sweden to 65% in Greece. Concerning the figures relating to management of waste in other countries, people in general are more worried about other EU countries than their own, and more worried about the candidate countries than the EU (49% of the 16,000 people questioned being in

this case 'very worried'). A parallel survey also showed that over 70% of the EU population would feel "reassured if the EU legislated on radioactive waste".

Concerning potential exports of radioactive waste for disposal in another country, opinions seem to be slowly shifting since the percentage of Europeans believing that disposal of radioactive waste is more suited to a regional approach rose from 12% to 18% between 1998 and 2001. A more marked shift, relative to the EU average, is seen in Greece, Spain, France, Ireland and Portugal, where support for a regional solution has approximately doubled since the 1998 survey.

However, the publication of the proposals has been followed immediately by strong reactions from Member States governments, the nuclear industry, waste management agencies, as well as antinuclear and environmental organisations.

Before even considering the actual content of the directives, it has been argued by some that the Commission had no legal right to impose a common approach to nuclear safety – the Euratom Treaty itself being considered obsolete in view of the changed attitude towards nuclear energy in several Member States. At the beginning of March 2003, over 100 antinuclear and environmental organisations called for abolition of the Treaty and opposed any increase of Euratom regulatory powers. The European Parliament itself would be in favour of marking the Euratom Treaty for expiration in 2007, on the 50th anniversary of its signing. There are also plans for a new European Constitution, drafted by the European Convention, but it has not yet been decided whether it would include some or all the provisions of the Euratom Treaty.

More specifically, opponents have questioned the ability of the Euratom Treaty Article 31 Group of Experts – specialising in health and radiation protection – to deal with issues such as radioactive waste disposal and decommissioning funds.

It has been suggested that the proposed directives do not contribute significantly to enhancing safety practices in both existing and future Member States – because all of these have already ratified the IAEA conventions, which include the same basic requirements – and merely add one more level of bureaucracy. Some opponents have also pointed out that several rulings are self contradictory, e.g. establishing the need to manage decommissioning funds externally, but stating that "if exceptional and duly justified reasons make such legal separation impossible, the fund could continue to be managed by the operator...".

The strongest opposition so far has come from Germany. During the Deutsches Atomforum (DAtF) Winter Meeting in February, German officials stated that their country would oppose the introduction of the European directives, arguing that the new standards would be likely to be much less stringent than German safety standards, because they would take into account current practices in candidates states. However, Article 14 of the safety directive states that

"Member States may apply more stringent measures than those laid down in the Directive", provided they notify the EC accordingly.

The German government and industry have been seeking support from other EU members. Finnish foreign minister Erkki Tuomioja has already confirmed that his country will support Germany's position – for quite different reasons. The Finns fear that common regulations would weaken strong national nuclear safety programmes, as well as being impractical because of the different reactor designs and their underlying safety philosophy. Sweden argues that common regulations would both dilute national responsibility and make it more difficult to work on an international level on the basis of IAEA regulations.

France has been less openly critical so far and the government appears rather in favour of the directives, but has not yet taken a position. André-Claude Lacoste, Director general of the Nuclear Safety and Radiation Protection Authority, is said to have expressed personal reservations about the approach taken by the EC. Lacoste is also former head of the Western European Nuclear Regulators Association (WENRA), which he initiated in 1999 because of the lack of existing standards at EU level. The association has since published two reports on nuclear safety in candidate countries and is currently developing a common approach to nuclear safety and regulations, especially in the fields of reactor safety, radioactive waste management and radioactive material transport.

The external management of decommissioning funds has also been opposed by Germany. Having collected over 31 billion Euros for 25 power plants – far more than any other European country – the German nuclear industry is not willing to entrust this money to an external organisation. In France, EDF and nuclear vendors feel that, if reserves were to be managed in a public fund, decommissioning itself should also be taken over by the government.

On the subject of waste management, various agencies have questioned the time schedule set up for licensing geological repositories. A German representative of the nuclear industry pointed out that such a timetable might force the government to take decisions. However, he doubted that all Member States would have the financial and political means to act according to this schedule. Early this year, the German Minister of Environment Jürgen Trittin wrote in a press release that "2030 was a realistic, albeit ambitious goal" for starting operation of a HLW repository. He based this statement on the conclusions reached at the end of 2002 by the working group AkEnd on procedures for siting a nuclear waste repository in Germany.

In the same document, Trittin strongly asserted his opposition to a regional repository solution after a statement from the Ministry had been misquoted by the "Hannoversche Allgemeine Zeitung" – with the article concluding that the government had agreed to import EU waste to Germany (see last Arius Newsletter).

In the UK objections have been raised because of the timescales proposed and also because the Directive confirms geologic disposal as the chosen long-term option. In the UK all options are formally being reviewed by the Government at present. This last point is relevant also for France where disposal, storage and transmutations are defined in the 1991 act as parallel strategies. Countries such as Belgium, the Netherlands or Spain do not seem to have made official comments so far. The proposals should soon be discussed by the European Council and will no doubt give rise to interesting debates in the next few months.

Upcoming Conferences

This section of the newsletter highlights conferences in 2003 and beginning of 2004 that are specifically relevant to Arius activities and objectives. Those at which Arius is attending or presenting papers are indicated.

May

13th - 22nd US Academies of Science and the Russian Academy of Science: "Problems of Managing Spent Nuclear Fuel and Selection of a Site for its Storage"
(Arius paper)

September

8th - 12th IAEA Meeting discussing the draft report "Developing and Implementing Multinational Repositories", Vienna, Austria

21st – 25th ICEM'03 9th International Conference on Radioactive Waste Management and Environmental Remediation, Oxford, UK.
<http://www.icemconf.com/>
(Arius paper)

February 2004

29th February - 4th March WM'04 - 30th Annual Waste Management Symposium, Tucson, AZ (US)