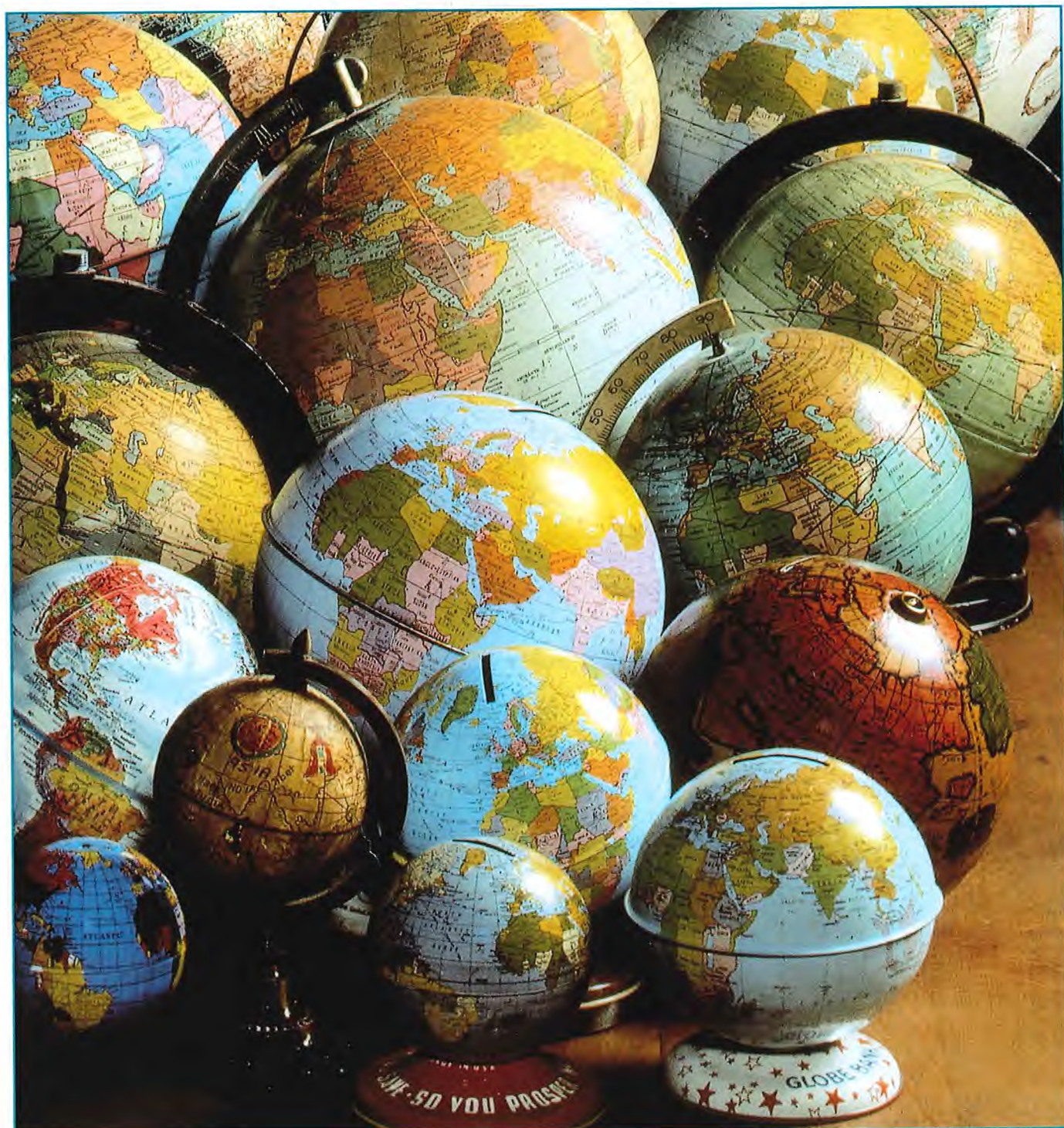


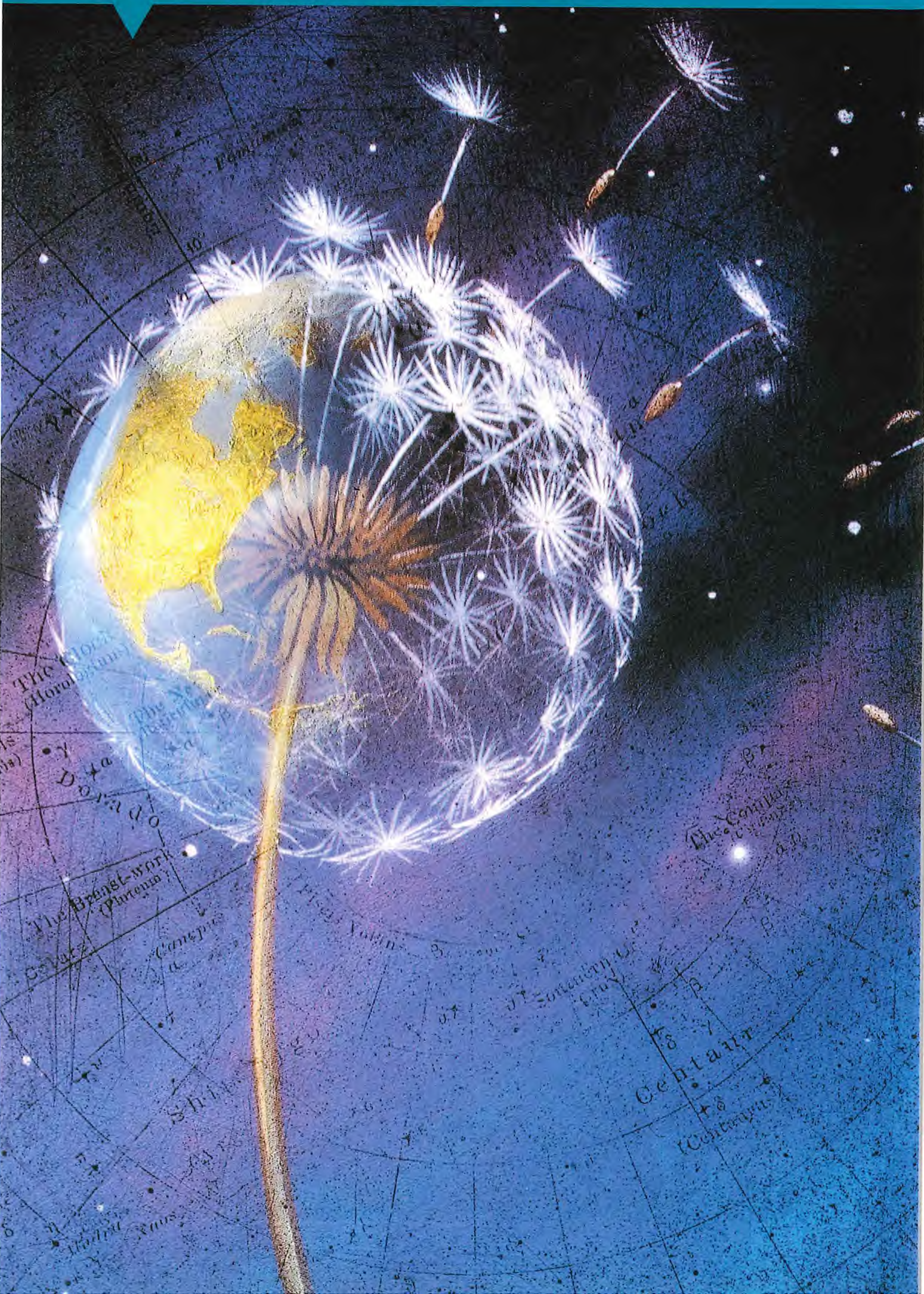
C O N T R O L E



Multilateral international relations

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Multilateral international relations

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Foreword

The international missions of the Safety Authority were recognised as early as upon its creation in 1973. Because nuclear safety is a national responsibility, it is of the utmost importance that the knowledge and practices in each country be submitted to in-depth peer exchanges so as to reach everywhere the best level of safety. The dossier of Contrôle 124 was devoted to international bilateral relations. I felt it necessary to supplement it with a dossier devoted to international multilateral relations.

Large international multilateral organisations, created at the end of the 50's to promote the peaceful use of nuclear energy, progressively developed structures in charge of promoting exchanges in the field of nuclear safety. The Safety Authority takes part in numerous activities of these organisations with both objectives of being informed of the practices abroad and of making its own practices known. However, its limited resources lead to select some activities among all those which are proposed, taking into account the specific features of each organisation and paying particular attention not to be involved in activities promoting nuclear energy.

Following the Chernobyl accident, the international community felt the need to conclude incentive international conventions recalling the responsibilities borne by the States in the field of nuclear safety. The meeting of the contracting parties to the Convention on nuclear safety in April 1999 showed the high degree of openness with which a large number of countries considered their obligations. Let us hope that this spirit is maintained in the future meetings of this Convention and also prevails for those of the Joint Convention on the safety of spent fuel management and of the safety of radioactive waste management which should soon enter into force.

Recently, associations of nuclear Safety Authorities emerged – should we say they abound ? Less formal than multilateral organisations and allowing exchanges as open and fruitful as those during bilateral meetings, I am convinced they have a future.

The dossier hereafter highlights these three aspects with particular emphasis on those which are of particular importance to the Safety Authority.

André-Claude Lacoste

The different types of international multilateral relations of the Safety Authority

by **Michel Asty, Head, International Relations Department – DSIN**

In a simplified manner, the Safety Authority is involved in three types of international multilateral relations highlighted by the three chapters of this dossier.

First, there are international conventions in the field of nuclear safety of which France is – or will soon be – a contracting party. These are the Convention on nuclear safety and the Joint Convention on the safety of spent fuel management and on the safety of radioactive waste management.

The Convention on nuclear safety entered into force at the end of 1996. An article by André-Claude Lacoste draws the lessons learnt on the French report and its presentation at the first review meeting of the contracting parties which took place in April 1999. Then Jean Scherrer relates his experience as “rapporteur” of the country group to which France was assigned during this meeting.

The second convention did not yet enter into force for want of the appropriate number of nuclear and non-nuclear contracting parties. Alec Jean Baer, who was the patient and effective Chairman of the group of legal and technical experts in charge of proposing a text for the convention, kindly accepted to give an account of its history.

The second framework for international multilateral relations is that of institutional organisations dealing with nuclear matters. These are the International Atomic Energy Agency (IAEA), the Nuclear Energy Agency of the OECD (Organisation for Economic Cooperation and Development) and the European Union.

Five articles present the activities of the IAEA. Its missions are described by Philippe Thiébaud, French Governor to the IAEA. Then, Zygmund Domaratzki, Deputy Director General of the IAEA, presents the organisation put in place to propose to the Director General recommendations in the fields of nuclear safety, radiation protection, waste management and transport safety. Two articles present some of the “services” proposed by the IAEA : Serge Prêtre, former Head of the Swiss nuclear Safety Authority, gives his opinion on the IRRRT mission (International Regulatory Review Team) which took place in his country in December 1998, and Georges Servièrre from EDF summarises the contributions of OSART missions (Operational Safety Assessment Review Team) for the French operator. Finally, an engineer of the Safety Authority, seconded to the IAEA since April 1998 where he joined the team in charge of radioactive waste safety, presents his vision of the work of the IAEA seen from inside.

The activities of the NEA are described in an article by its Director General Luis Echávarri who presents the strategic plan which was recently adopted and its consequences in terms of activities connected with nuclear safety. Then Jean Gauvain, senior executive in DSIN’s international relations department, summarises the contribution of NEA working groups to the Safety Authority’s activities.

In the European Union, nuclear safety remains a national competency. Nevertheless, the European Commission develops several activities connected with nuclear safety through informal groups for information exchange. The Commission’s policy in this field is described in an article by James

Currie, European Commission's Director General for the Environment. The contribution, from a multilateral relations perspective, of the actions funded by the Commission to improve regulatory nuclear safety in Eastern Europe is presented in a joint article by Aníbal Martín, Chairman of the CONCERT Group, and Richard Bye, Chairman of RAMG.

The last framework for international multilateral relations is that of informal Safety Authorities associations.

DSIN takes part in INRA (International Nuclear Regulators' Association) whose members are

the Heads of the regulatory bodies of Canada, France, Germany, Japan, Spain, Sweden, the United Kingdom and the United States of America. Its Chairman, Laurence Williams, presents its objectives and achievements.

DSIN also takes part in WENRA (Western European Nuclear Regulators' Association) which brings together the Heads of the Safety Authorities of Belgium, Finland, France, Germany, Italy, the Netherlands, Spain, Sweden, Switzerland and the United Kingdom. André-Claude Lacoste, its first Chairman, is the author of an article describing its objectives and achievements.

THE INTERNATIONAL CONVENTIONS

The international conventions dealing with nuclear safety

by **Michel Asty**, Head, International Relations Department – DSIN

Shortly after the Chernobyl accident, the idea was put forward that a dialogue “between peers” could contribute to increase the consciousness for nuclear safety and hence nuclear safety itself. Under the auspices of the largest possible forum, that of the AIEA, all countries wishing to take part met to draft the text of a convention on nuclear safety.

The discussions started at the end of 1991 and led to the Convention on nuclear safety which was opened for signature and ratification on 20 September 1994 and entered into force on 24 October 1996. As of 31 January 2000, 53 countries had become contracting parties. Its scope, restricted to land-based civil nuclear power plants, reflects the difficulties encountered during the negotiations which ended with a commitment to negotiate a second convention initially to cover nuclear wastes, but extended to spent fuel : the Joint Convention on the safety of spent fuel management and on the safety of radioactive waste management, often referred to as the Joint Convention, was opened for signature and ratification on 29 September 1997. As of 5 May 2000, 41 countries had become signatories and 19 of these (among which 13 “nuclear” countries) were contracting parties. On 2 March 2000, France adopted the necessary ratification law and transmitted its ratification instruments on 27 April 2000. The IAEA is the depository of both conventions and provides the secretariat for the meetings of the parties.

The texts of these conventions, the lists of contracting parties together with other documents can be found on the web site of the AIEA : <http://www.iaea.org/worldatom>

{ And I'm sure we'll have no difficulty agreeing on the basic format of our report... }



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The Convention on nuclear safety : lessons for France from the first review meeting of the contracting parties

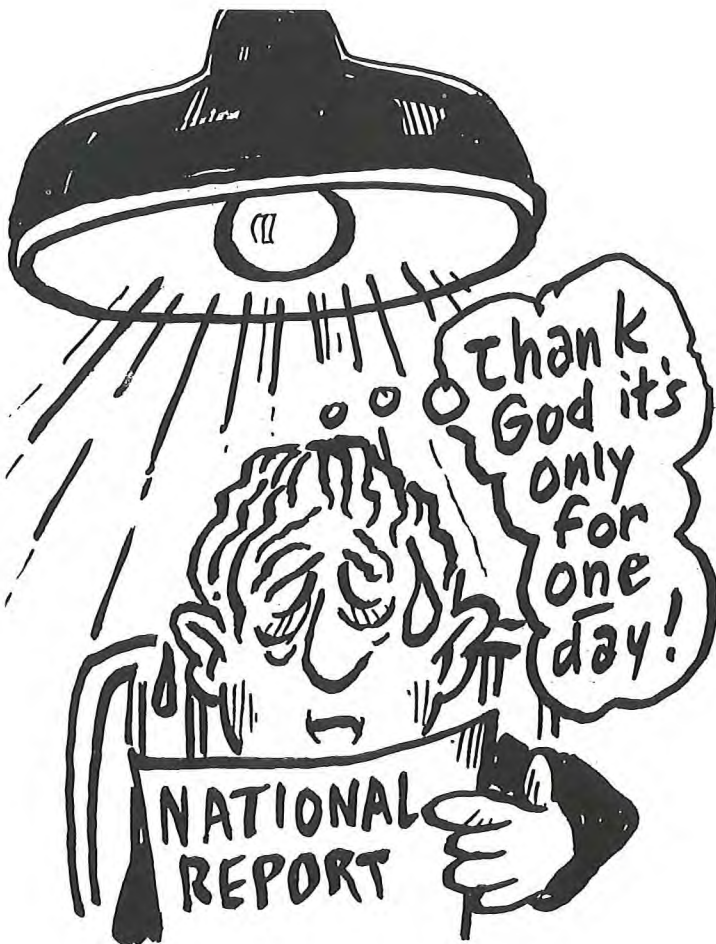
by **André-Claude Lacoste**, Director, Nuclear Installation Safety Directorate

The Convention on nuclear safety, which entered into force on 24 October 1996, states at Article 20 that the contracting parties shall present at each review meeting – every three years – a report on the way they satisfy its obligations. The first review meeting, which took place in Vienna from 12 to 23 April 1999, was for France rich with lessons.

The French report

The first lessons drawn are on the report France, when becoming a contracting party, obliged itself to present at each review meeting. As stated in one of the documents annexed to the Convention, the contracting parties are invited to produce their report along its articles. Besides, the DSIN, which was in charge of co-ordinating the production of the French report, did not want to present a report suited to the occasion which could easily show how France fulfilled the obligations along the Convention, but decided to draw from existing documents produced for other reasons than the Convention by the regulatory bodies and also by Electricité de France, operator of the reactors in the scope of the Convention. Another advantage of such a report is that each entity takes the responsibility for its commitments under the Convention : for instance, it is the Safety Authority's responsibility to explain how its independence from nuclear promoters is ensured, and that of the operator to justify how it gives the prime priority to safety.

As a consequence, the French report consisted of a short "chapeau" report along the Convention's articles. It summarised the French position vis-à-vis each article and referred the reader for more detail to the appropriate parts of annexes among which were the annual report of the Safety Authority, an excerpt of OPRI's (Office for protection against ionising radiation) activity report and documents originating from EDF such as the Nuclear Power Plant Operating Safety Handbook initially intended for its personnel. As this report had to be submitted before September 1998, only the 1997 ver-



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sions of the Safety Authority and OPRI's annual reports could be used.

The end result was a report which was criticised for its thickness, but especially because of the difficulties encountered by the readers to find their way in the annexes : as an example, the annual report of the Safety Authority also covered installations outside the scope of the Convention.

Finally, without it being a criticism, many contracting parties asked whether the French report was available on Internet, and this was excluded because of its structure.

Its presentation

For the presentation of their national reports, the contracting parties were assigned to country groups, each one having «nuclear» and «non-nuclear» countries, the former having a full day to present their report, the latter half a day or even less. France was assigned to country group 1 together with Bulgaria, Slovakia, the Netherlands, Brazil, Croatia, Greece, Denmark and Belarus. Being the country with the largest number of reactors, France was to «open fire» and was the first country in its group to present its report.

In the same way as the report, the oral presentation was made in the order of the articles, alternately describing the French situation and having answers being provided by those they commit to the questions put in advance by the contracting parties.

During the oral presentation, a particular technical item had to be developed, namely periodic safety reviews. The 1997 version of the Safety Authority annual report did pre-

sent the situation with the periodic safety reviews for the different reactors but said nothing of the general philosophy in this field.

Which lessons ?

The main lesson is about the report. For the second review meeting, already planned in April 2002 (that is to say that each contracting party will have to deliver its report before September 2001), France will have to find ways to conciliate the objectives it identified and the criticisms expressed on the first version : a concise report but sufficiently detailed to give all necessary pieces of information on installations in the scope of the Convention, a report leaving to the operator the responsibility of its assertions concerning the way he implements the obligations of the Convention, a report which can be transferred on the Safety Authority's web site.

The presentation in itself does not give rise to particular lessons, except that it really was a physical test over a full day, even if the discussions took place in a very open and relaxed atmosphere.

Considering the review meeting as a whole, the exercise was more productive than expected. With very few exceptions, the contracting parties "accepted the game" of openness and transparency, often recognising the weaknesses of their regulatory system or of their installations. From this point of view, the important effort the Convention implied is crowned with success. How this dynamic effect can be made to last over the successive review meetings is the problem now to be solved.

The experience of a "rapporteur" at the first review meeting of the contracting parties to the Convention on nuclear safety

by Jean Scherrer, Ingénieur Général des Mines

In April 1997, I was offered to serve as a "rapporteur" during the first review meeting of the contracting parties to the Convention on nuclear safety. As I had in the past taken part in the work to discuss and finalise this convention, my interest was aroused and I accepted.

Long months then elapsed and, in September 1998, I learned that, on a proposal by the French delegation during a preparatory meeting, my name had been accepted. I was to be the rapporteur of Group 1 of the contracting parties which included France, Bulgaria, Slovakia, the Netherlands, Brazil, Greece, Croatia, Belarus and Denmark.

In view of the meeting of the contracting parties to the Convention, the national reports had been circulated six months in advance and each contracting party had been invited to send written questions. Co-ordinators had been appointed to collect the questions and produce a synthesis. The role of the co-ordinators ended in principle when the meeting strictly speaking started.

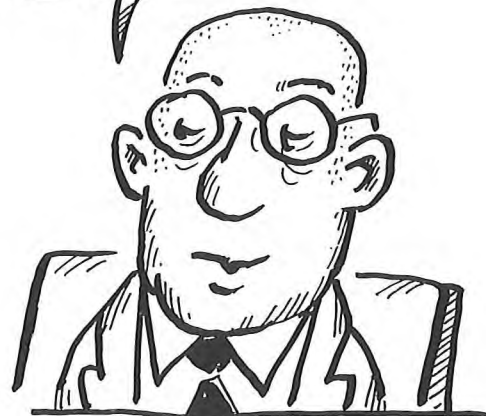
Much to my surprise, only the co-ordinators and rapporteurs had been selected by the delegations of the contracting parties during the preparatory meetings. The Chairmen of the country groups, although they had been identified six months in advance, were not to be appointed before the opening plenary session. Indeed it was important to prepare the organisation of the debates. The rapporteurs were expected to adopt a neutral position during the debates so as to report in plenary session on their spirit and substance in each group as much as the presidents were expected to channel the discussions to

ensure a minimum homogeneity in the debates without being too authoritative.

In fact, the President of the review meeting and one of the two Vice-Presidents, although only identified at that time and supposed to be appointed during the first plenary session, attended informally the 4-day preparatory meeting which took place in Vienna at the beginning of March with the co-ordinators and rapporteurs.

We could inform the President that it would be appropriate to provide prior information to the Chairmen. This could occur in the afternoon of Sunday 11 April, on the day before the start of the contracting parties meeting.

Since we have a formal decree from the government that our nuclear plants will be safe, there's no problem!



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The first review meeting of the contracting parties to the Convention on nuclear safety started on 12 April 1999 with an opening plenary session. This first day was devoted, as it is usual, to several formal activities such as electing the President and Vice-Presidents, controlling the credentials of the delegations, defining the work programme for the next two weeks, etc.

Also, a diplomatic problem had to be solved on this very first day. It concerned the participation of the United States of America to the work of the contracting parties. For internal reasons, they had only ratified the Convention on 9 April 1999, i.e. three days before the first review meeting and as a consequence were not a contracting party. They could not attend any country group meeting but it was decided to welcome their ratification and let them attend the final plenary session, notably in view of their future participation as a full contracting party in the second review meeting foreseen in April 2002.

My job as a rapporteur really started on 13 April with the review of the French report. From this very instant, an anomaly was obvious. The rules of procedure stated that «each group should elect its rapporteur», which meant that a rapporteur necessarily came from a country of the group and would have to report on his own country. Personally, as one of my duties in France is to inspect the regional teams of the Safety Authority, I was used to staying at a distance from its actions. For instance, I felt no difficulty in reporting on the questions put by other members in the country group on the structure of the French report which did not comply with the recommendations adopted at the preparatory meetings.

I felt the position of another rapporteur rather uncomfortable. Being in charge of regulating nuclear reactors in his national Safety Authority, he also ensured the presentation of his national report before coming back to his role as a rapporteur. Even more critical was the situation of a rapporteur who, as director of a research institute on



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power reactors, was a member of a delegation strongly dominated by its national nuclear industry. It was thus decided that, at future meetings of the contracting parties, the rapporteur in a country group should as a rule come from a country not represented in the group.

From Tuesday 13 to Friday 16 April and on Monday 19 April, a kind of pace of work prevailed :

- presentation and discussion of a national report during the morning and the first half of the afternoon,
- preparation of the conclusions of the day by the rapporteur together with the Chairman and Vice-Chairman of the group during the coffee break,
- presentation to, and discussion with, the group of the conclusions proposed by the rapporteur,
- typing of the rapporteur's notes,
- at the end of the day, meeting with the President, the Chairmen and Vice-Chairmen, the co-ordinators and rapporteurs of all groups to assess the day's work (end at about 7 to 7:30pm).

Besides the work itself of the rapporteurs, the meetings at the end of each day were of the utmost importance to harmonise our positions and also to prepare the final conclusions. As an example, we could define the general format of a rapporteur's final report and, more important, realise that there was no space in the time schedule for preparing the report. The time schedule on Tuesday 20 April afternoon was accordingly modified. On the other hand, we never could exchange our notes and, although our reports were based on a single format, they differed to a large extent in their presentation style.

Personally, I was surprised to note the open character of the group discussions. Embarrassing questions were sometimes asked; each country took it as its duty to answer in the most open way and the representatives from the most anti-nuclear countries succeeded in avoiding useless controversies. In fact, clearly such discussions could take place because they were not public; the strong and weak points of each organisation could be examined calmly and without excessive passion.

On 20 April morning, Group 1 examined in sequence the reports presented by the four countries (Belarus, Croatia, Denmark and Greece) having no reactors on their territory. The national organisations for radiation protection and emergency preparedness and planning fully justified their participation in the meeting of the contracting parties.

The afternoon on the same day was devoted to the preparation of the final and oral report by the rapporteur, again with the Chairman and the Vice-Chairman. At the end of the day, each rapporteur could submit to the President his draft report.

The 21st of April was devoted to the presentations in plenary session of the rapporteurs' reports. Again, we could note a very good discussion spirit, but the tone and style of the reports differed widely from one rapporteur to another.

On 22 April, while the plenary session, chaired by one of the Vice-Presidents, dealt with the amendments to the rules of procedure for future meetings, the President, the Chairmen and Vice-Chairmen of the country groups, the rapporteurs and co-ordinators prepared together the final report of the contracting parties' meeting. Harsh discussions were necessary to come to a report highlighting as clearly as possible the main conclusions reached. Items as important as the formal or *de facto* independence of the Regulatory Body or the effectiveness of a reactor's confinement function could be openly discussed and identified as necessitating further follow-up.

Finally, on Friday 23 April, the final report of the meeting, the President's report and the report on the rules of procedure for future meetings could be adopted in plenary session.

In short, these two weeks were exhausting for the rapporteurs (except the 17-18 April week-end which was free) but I found them of high interest. The principle according to which each country presents its organisation and way to regulate nuclear safety in front of other countries did work well with a few exceptions; real discussions could take place, sometimes they were harsh but never polemic.

FORMAL INDEPENDENCE



DE FACTO INDEPENDENCE



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My impression for the future meetings is that, besides the matter of a rapporteur who should no longer be requested to report on his own country, appointing at an earlier stage the Chairmen and Vice-Chairmen of the country groups should allow a better organisation and harmonisation of the debates.

To conclude, it is my personal pleasure to thank all those who helped me in my duty as rapporteur and particularly the secretaries of the IAEA who efficiently ensured the typing under difficult conditions. Without their assistance, my work would not have been possible.

The Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management

by **Alec Jean Baer, Switzerland, Chairman of the International Group in charge of preparing the Convention**

More than two years after the events, it is interesting to recount the progression which led in September 1997 to the convention in question. Before coming to the real topic, a preliminary remark should be made to highlight the quality of the debates and the general working atmosphere. Even when the negotiations were most difficult, even when some obstacles seemed insuperable, the tone of the debates always remained courteous and everyone showed great respect for the others' opinion. Without this positive atmosphere, without the continuous efforts to better understand the arguments of one and all, the Convention would not have become what it is.

One should also remember that the first formal session of the legal and technical experts group in charge of proposing a text for the convention included 128 delegates from more than 50 IAEA Member States. Their only common feature was their function of delegates, with among them internationally recognised experts as well as representatives from diplomatic missions in charge of all United Nations institutions having their seat in Vienna. As and when the debates proceeded, one could see this heterogeneous group identify itself with "its" Convention and do all it could to complete the work within the prescribed time limits. This fascinating evolution has been due to a large extent to the excellent working climate.

Genesis of the Convention

Its origin can be dated back to 17 June 1994 when a Diplomatic Conference finally approved the text of the Convention on Nuclear Safety. Indeed, in its preamble, the

Convention recommended to promptly initiate the work for a further convention on radioactive waste. This first conception period was to end in February 1995 with the so-called preliminary meeting organised by the IAEA to examine the possible content of a future convention on radioactive waste.

The legal and technical experts group held its first session in June 1995, thus opening a new era of work. From June 1995 to March 1996, the group defined the framework of the new Convention and was able to draft the whole text with the exception of the "delicate" topics mentioned below.

From its fourth meeting in June 1996 to the seventh and last one in March 1997, the group succeeded in settling all pending problems.

The Diplomatic Conference from 1 to 5 September 1997 represented the ultimate step of the work. It grappled without much success with two essentially political problems (see below) that legal and technical experts had been unable to solve, and the Convention was formally opened for signature on 27 September 1997.

The difficulties which were overcome

As early as the first meeting of the experts group, it became clear that four problems would be difficult to solve :

- the inclusion of spent fuel,
- radioactive waste transboundary movements,
- the situation with waste from military or defence activities,
- the connection with the Convention on Nuclear Safety.

In fact, many thought, after this first meeting, that these problems would be impossible to solve in the framework of the convention.

In addition to these four major difficulties, two additional and less serious ones were identified :

- the question of disused sealed sources,
- the directives for the reports to be produced.

Spent fuel

This was without a doubt the most difficult problem that the experts group had to solve. The difficulty came from the fact that, for the countries which reprocess spent fuel, it is considered as a resource and not as waste, and thus could not fit in the convention as it was envisaged, whereas for those countries which do not reprocess it, spent fuel indeed is considered as waste. In addition, some were of the opinion that the mandate of the experts group only mentioned waste and, as a consequence, it could not address the spent fuel issue and the delegation of a country having important reprocessing facilities thought it would protect its national interests by strictly refusing to open discussions on spent fuel.

In a first phase, the delegates progressively became convinced that the only important issue in the Convention was to ensure the safety of spent fuel as it could present a real danger. The Gordian knot was cut in November 1996 when, following a proposal by France, a vast majority of delegates recognised as an acceptable compromise the concept of a Convention with two facets, one covering spent fuel and the other devoted to waste. From that time on, only details had to be settled !

Transboundary movements of radioactive waste

Whereas it had been easy to reach an agreement in principle on the necessity to ensure waste safety during transboundary movements and on the need to avoid at any cost their "dumping" in countries not having the infrastructure for their adequate management, finding an acceptable language for an

article of the Convention proved extremely delicate. The experts group, which did not want to create new international law, had to recognise the fact that ground, air and sea transports are regulated through three different legal systems. Similarly, the issue of movements through "transit" states is settled in different ways for sea and terrestrial transports. To make things even more complicated, the political geography of straits, passages and internal seas created situations that had to be taken into account (see below, Diplomatic Conference). The final text of Article 27 in the Convention obtained a large consensus but was not unanimously adopted.

Military wastes

After long debates, the expert group concluded that the civil or military origin of wastes was of little importance when ensuring their safety was at stake. As a consequence, it entrusted the representatives of nuclear weapon States with the task of proposing an acceptable language. These agreed on the fact that military or defence wastes would only fall under the scope of the Convention if they were voluntarily submitted to its provisions or if they had been permanently transferred to civil programmes. One can regret that the Convention does not provide for a compulsory inclusion of these wastes, with possible exemptions, but the final text still represents a substantive step in the right direction.

The connection with the Convention on Nuclear Safety

From the start, it had been recognised that the best possible continuity should be ensured between both conventions while avoiding gaps as well as overlaps. After agreeing on eliminating gaps at all cost even if some overlaps would inevitably remain, the experts group solved this problem of an essentially legal nature on the one hand by ensuring that waste management would cover, by definition, the decommissioning of nuclear installations and on the other hand by adopting a definition of these installations such as to avoid gaps between the scopes of the two Conventions.

Problems of lesser importance

Strictly speaking, disused sealed sources are not waste as they often are recycled but they represent by far the most frequent cause of radioactive accidents. For this reason, the expert group decided to devote a specific article of the convention to them (Art. 28).

As for the directives for the reports to be submitted, they include preparing national inventories of waste management installations of the wastes themselves and of installations being decommissioned. This requirement upset many delegations until they recognised that they simply would have to report, in a transparent manner, on what was already known.

The Diplomatic Conference



Diplomatic Conference convened to adopt the Joint Convention from 1 to 5 September 1997

The role of such a conference is to review the text produced by the legal and technical experts, to adapt it if necessary and to give to it a political blessing. In this particular case, the Conference dealt with two political issues, on the one hand the need to obtain the agreement of a transit State before a

movement by sea (case of the Bosphorus and Dardanelles) and on the other hand the nature of the relations with political entities which are not recognised as States (case of Taiwan). In both cases, the Diplomatic Conference could not or did not want to amend the text proposed by the experts group.

Conclusions

One will have noted that virtually all the difficulties encountered were provoked less by the principle at stake (the "what") than by the way to transcribe this principle in practical terms (the "how"). Even in the case of spent fuel, the disagreement was not so much on the need to ensure its safe management than on the way to transcribe this requirement with due consideration for national political contexts.

As far as the two political issues dealt with at the Diplomatic Conference are concerned, it is almost certain that, should the delegates have been allowed more time to discuss them, they would have come to an agreement.

On the whole, the negotiations of this convention confirmed what prior negotiations have already shown :

- the most efficient approach is one that stays on the rational and constructive side and that gives full consideration to the opinion of others,
- in order to come to an agreement, one needs to understand the position of the other party,
- the lack of time often leads to failure, but paradoxically, the need to come to an agreement within a prescribed period of time can act as a remarkable motivation.

THE INTERNATIONAL ORGANISATIONS

The main tasks of the International Atomic Energy Agency

by **Philippe Thiébaud**, Governor for France at the IAEA

The International Atomic Energy Agency (IAEA), of which France is a member since the beginning, was created on 29 July 1959 by a decision of the General Meeting of the United Nations Organisation (UNO). It is the major international authority in charge of civil atomic applications and is open to any states wishing to become a member.

The last General Conference session, which was held in its headquarter in Vienna, from 27th September to 1st October 1999, was an

opportunity for the 131 Member States to confirm, through "resolutions", the general orientations to approach the XXIst century which were the subject of a review by the Board of Governors (see box: operation of the Agency). The priority tasks for the IAEA are:

- 1) assistance to Member States in the use of nuclear techniques;
- 2) safeguards for their peaceful use;
- 3) promotion of the safety of these techniques.

Operation of the International Atomic Energy Agency

The IAEA operates through three entities with different competencies and powers: the General Conference, the Board of Governors and the Secretariat (this word is traditionally used for Agency's staff) headed by the Director General.

1) The general Conference, which gathers all the Member States, is the supreme decision making entity. It meets once a year in ordinary session – generally upon a recommendation of the Board of Governors – in particular to take note of information reports, to define through "resolutions" the general orientations of the Agency and to endorse the budget.

2) The Board of Governors is the major decision making entity. It consists today of 35 members (Governors), among which the outgoing Board designates certain members for one year: the thirteen most advanced Member States in the nuclear technology field, among which is France; these States benefit de facto from a quasi standing member statute. The General Conference elects the others for two years.

The Board of Governors meets once every quarter in ordinary session (extraordinary meeting are organised if necessary). The Board takes its decisions, on the one hand, on the basis of recommendations elaborated by advisory groups or specific committees and, on the other, on documents and proposals prepared by the Secretariat's Departments.

3) The Secretariat (involving more than 2200 staffs, among which about 750 executives) and the Director General have little power in theory. In practice – and this is essential – their reports and proposals provide the basis of information at disposal of the members of the Board of Governors and the General Conference for taking their decisions.

The Director General (DG) is responsible for the administration and the implementation of the Agency's programme. The General Conference elects him for a four-year term, upon proposal of the Board of Governors. Since 1st December 1997, the position is held by Mohamed ElBaradei (Egypt), who succeeded Hans Blix (Sweden, DG from 1981 to 1997).

Assistance provided to Member States in the use of nuclear techniques

Assistance provided by the Agency is performed through transfer of technology, in particular within technical co-operation programmes.

Nuclear energy

The main objective of the programme for promoting the peaceful use of nuclear energy is to provide a support to Member States which have already implemented or which envisage implementing a nuclear power programme. The work of the Agency relies on International Working Groups (IWG) bringing together high level scientific and technical experts. These actions are mainly oriented towards information exchange, database implementation and holding international Conferences.

The first objective aims at optimising nuclear power plants' lifetime and decommissioning techniques and at the backend of the nuclear fuel cycle, especially at spent fuel management, plutonium re-use in mixed plutonium-uranium oxide fuel (MOX). This priority applies also to technical solutions for radioactive waste management, whether or not they result from nuclear energy production.

Application of radiation and isotope techniques

The IAEA action gives particular importance to help Member States in agriculture and food processing (insect pest eradication, radiation immuno-dosimetry, sterilisation, food conservation by ionisation...), in medicine (diagnosis assistance, radiation therapy) and in earth science (application of isotopic hydrologic techniques for water resources assessment, and for environment monitoring and protection).

These applications of nuclear techniques constitute an important part of the technical co-operation activities towards the developing countries.

Safeguards for the peaceful use of nuclear techniques

The IAEA safeguards system was the subject of a considerable development over the last

ten years, as new States became part of international instruments for non-proliferation of nuclear weapons. The Agency is the world organisation in charge of supervising the States' commitment of a peaceful use of nuclear energy in the frame of:

- signatory countries obligations resulting from the Non Proliferation Treaty (NPT);
- treaties establishing nuclear weapon free zones;
- co-operation agreements between States requesting the Agency to exert its supervision;
- voluntary offers given by nuclear weapon States.

In this framework, the IAEA performed, at the request of the Security Council of the United Nations Organisation, all the supervisions and interventions needed by the implementation of the resolutions related to the Iraqi nuclear programme following the Gulf war.

Since 1992, it has been confronted with the situation created by the failure of North Korea to fulfil its obligations related to nuclear material supervision.

Such situations (North Korea, Iraq) have emphasised the limits of this system, in particular due to the difficulty to detect non-declared activities or installations. Hence the adoption of proposals aiming at reinforcing it and of the "93 + 2" programme decided in 1993 so as be established in 1995 (date of the opening of the NPT extension conference). The Board of Governors completed this programme, after long negotiations, in May 1997 with the adoption of a model for an additional Protocol to safeguards agreements concluded in the frame of the NPT.

Since then, by concluding such a protocol with the IAEA, non nuclear weapon countries which are signatories of the NPT will have to provide the Agency with detailed information (status of their research activities in the nuclear field, nuclear equipment import and export, uranium and thorium mining resources...) which will enable it to have a better view of their nuclear programme. Supervision procedures have been extended and, if the Agency were to detect contradictions in provided information, it would be able to perform inspection, not only in operating installations or research centres, but also in locations to which it could not have

access before such as shutdown reactors or plants manufacturing products likely to be used in a nuclear programme.

Moreover, nuclear weapon States, such as France, are committed to provide information on their commercial and nuclear co-operation activities.

For the Agency the future application of these new safeguards provisions should at least give it high presumptive grounds on the existence of secret activities.

Physical protection and fight against illicit trafficking of nuclear materials constitute also major fields of action.

Promotion of nuclear safety

In March 1985 the IAEA created the International Nuclear Safety Advisory Group (INSAG), and its first report was devoted to the Chernobyl disaster which occurred one year later. But it was in 1996 that the IAEA, recognising the importance of safety, as decisive factor for nuclear energy acceptance, created the Department of Nuclear Safety (see box: Organisation of the Agency).

The activities of the Agency in this domain are based on the principle that each Member State is fully responsible of the safety for its installations.

The promotion of safety relies on three points:

- reinforcement and implementation of international legal instruments;
- publication of internationally accepted standards;
- assistance to Member States in applying these conventions and documents.

The Agency is depository of international conventions. It encourages Member States to become Contracting Parties and contributes to their application, in particular through assistance in the peer review process.

In addition, the IAEA is central to discuss if new international instruments are needed. For Instance an action plan related to radiation source safety and radioactive material security was initiated. This plan includes provisions for expert services to assist Member States in reinforcing their capability in industrial or medical sources supervision, especially to avoid "orphan" sources (lost or abandoned). An initiative is also planned aiming, in consultation with the World Health Organisation, at improving radiological protection of patients benefiting from medical application of radiation.

Such programmes are supplementary to existing assistance actions to reinforce, or even create, radiation protection infrastructure in some Member States. These actions

The IAEA organisation and resources

The IAEA is divided in six Departments each being headed by a Deputy Director General.

The current Deputy Director Generals are as follows:

Administration: M. Waller (United States of America)	with a budget of US \$ 68,0 M
Nuclear Sciences and Applications: M. Machi (Japan)	with a budget of US \$ 32,1 M
Safeguards: M. Goldschmidt (Belgium)	with a budget of US \$ 81,6 M
Technical Co-operation: M. Qian (China)	with a budget of US \$ 12,9 M
Nuclear Energy: M. Mourgov (Russia)	with a budget of US \$ 12,5 M
Nuclear Safety: M. Domaratzki (Canada)	with a budget of US \$ 14,6 M

The total ordinary budget planned for 2000 is : \$ 221,7 M

In addition to the ordinary budget of the Technical Co-operation Management department, the Agency has at its disposal, for its technical co-operation, supplementary funds to an amount of US \$ 91,8 M.

The four largest contributions to the IAEA financial resources are USA (25%), Japan (19.7%), Germany (9.7%) and France (6.5%). Total contribution of the fifteen States of the European Union is about 36.5%.

rely on training programmes and are primarily intended for the safe use of radiation sources.

The Agency has set up safety standards, which apply to domains such as nuclear power plants, radiation protection, radioactive waste management and radioactive material transport. Without any mandatory nature, they express an international consensus on requirements to be fulfilled.

In addition, the Agency provides Member States at their request with advisory services such as:

- “OSART” (review by Agency contracted experts, at the request of a Member State, of the operational safety of a nuclear power station);
- “IRRT” (review by Agency contracted experts, at the request of a Member State, of the organisation of the Safety Authority);

– “ASSET” (review by Agency contracted experts, at the request of a Member State, of a post incident management phase).

Finally, safety related activities are one of the major pillars of the technical co-operation and assistance mission vested in the Agency, with a large number of projects (150), allocated grants (200) and with training courses (about ten), each one extending over an average period of five weeks.

Conclusion: IAEA missions at dawn of the XX1st century

The Agency's missions aim at reinforcing the capability of its Member States to take full benefit from nuclear techniques for their development. One of the goals is the establishment of a real safety culture on a world wide scale, allowing the application of equally rigorous criteria in all countries.

The International Atomic Energy Agency safety standards

by Zygmund Domaratzki, Deputy Director General, Head, Department of Nuclear Safety, IAEA

Introduction

The IAEA was established in 1957 as an inter-governmental organization within the United Nations family, with the objective of seeking to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world. The development of nuclear and radiation safety standards is a statutory function of the IAEA. The IAEA Statute expressly authorizes the Agency "to establish standards of safety" and "to provide for the application of these standards". Assistance is provided to the Member States in the application of the standards through a variety of ongoing activities including: direct safety-related assistance; fostering information exchange; promoting education and training; and rendering a wide range of safety related services to requesting Member States. The IAEA's work towards meeting its responsibilities for establishing safety standards is the main subject of this paper.

History

The IAEA's safety standards programme is rooted in the late 1950s. In 1959, two years after the IAEA's creation, the United Nations Economic and Social Council asked the IAEA to establish recommendations for the **safe transport of radioactive material**. By March 1960, the first international measures for radiation protection and safety had been drawn up and were approved by the IAEA Board of Governors. The *Regulations for the Safe Transport of Radioactive Material* were established and first issued in 1961 (the latest revised edition was published in 1996).

The Board first approved the **Basic Safety Standards** (BSS) for radiation protection in June 1962 (three revised editions have followed: 1967, 1982 and 1996).

As nuclear power expanded globally, the need for a comprehensive set of nuclear power plant safety standards emerged. The IAEA's **Nuclear Safety Standards** (NUSS) programme was established in 1974, which resulted in the development of a set of 60 standards (codes and supporting guides) dealing with the principal aspects of nuclear power plant safety, from siting to operation.

The involvement of the IAEA in the management of radioactive wastes started soon after the Agency's creation in 1957. At that time, the disposal of radioactive wastes in the sea was an option being favoured by countries developing nuclear power, and in 1961 the IAEA published Safety Series No. 5 which was concerned with establishing appropriate safety procedures and practices for the disposal of radioactive wastes in the sea. This was followed a few years later by international guidance on radioactive disposal in the ground (Safety Series No. 15, 1965). By the late 1970s the issue of radioactive wastes and their management was becoming increasingly important. It was seen as one of the technically unresolved issues of nuclear power. The IAEA responded by establishing a set of safety standards, the **Radioactive Waste Safety Standards**.

The standards today

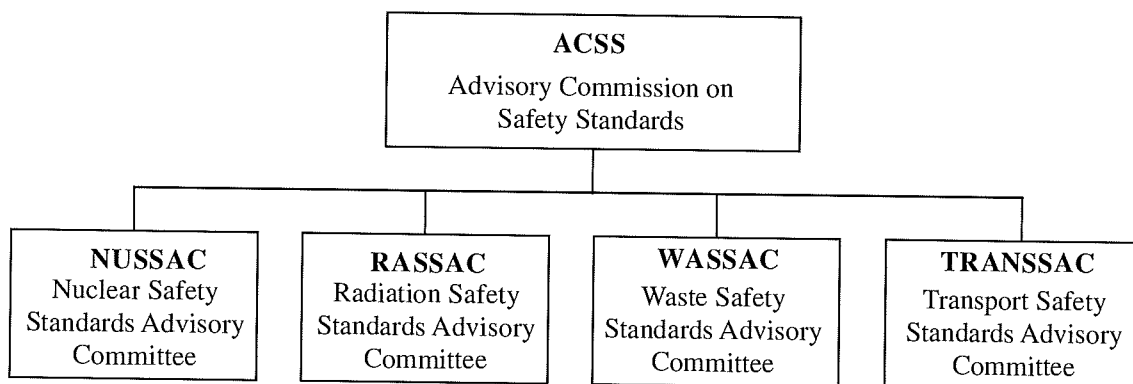
Over the years the IAEA safety standards were expanded both in scope and number. By late 1995 there were over 100 safety standards covering the four areas of nuclear, radiation, radioactive waste and transport safety published in the IAEA Safety Series. Although there was harmonization of the standards within each of the four groups, they were developed largely in isolation from each other, which resulted in a lack of

compatibility among the published safety standards. In 1996 an integrated approach for the development of safety standards was adopted. This set in motion a comprehensive review and strengthening of the safety standards programme. This ongoing process has been, and continues to be, influenced by interrelated challenges. Safety is a dynamic concept which must remain in step with scientific and technical developments. In that context, standards are not enough to ensure achievement of higher levels of safety. It is important that safety standards be kept up to date and put into effect at the working level as part of an integrated approach and commitment to maintaining "safety culture" worldwide.

Preparation and review process

On 1 January 1996, the IAEA modified its organizational structure, creating a separate Department of Nuclear Safety with inter alia the responsibility to organize the preparation and review of the IAEA's safety standards as a high priority objective. A uniform preparation and review process was introduced, covering all areas in which the IAEA establishes safety standards.

As part of this process, it created a set of advisory bodies with harmonized terms of reference to assist the Secretariat in preparing and reviewing all safety standards. The structure of the advisory bodies is illustrated in the chart below.



At their first meeting in early 1996, the Advisory Committees took note of the published Safety Fundamentals (covering safety of nuclear installations, radiation protection and radioactive waste management) and prepared a work plan outlining a list of proposed topics for development of Safety Requirements and the topics to be covered by Safety Guides supplementing each of the Safety Requirements. This included the preparation of new safety standards and revision of the existing ones, with priorities attached for each topic to be developed. At its first meeting in March 1996, the Commission endorsed the plans for development of safety standards submitted by the four Advisory Committees. In order to minimize possible duplication of efforts, the Commission decided that the preparation of material on topics of common interest to all Committees (i.e. legal and governmental infrastructure, quality assurance, emergency preparedness) would fall under a special cat-

egory of general safety. The standards included in this category are reviewed by the four Advisory Committees before submission to the Commission for final endorsement.

The initial step in the procedure is development of DPP (Document Preparation Profile) prepared for each proposed safety standard, outlining the need, the interface with the other safety standards, the proposed contents and the involvement of the specific Advisory Committees in its development and review. The approval of the DPP sets in motion the preparation of the standard by organizing expert group meetings to draft or revise standards; submitting drafts to the relevant advisory committees (NUSSAC, RASSAC, WASSAC or TRANSSAC) for review; submitting draft standards to the IAEA Member States for comment; obtaining the (internal) IAEA Publications Committee's approval for each document in order to ensure compliance with the IAEA's editorial policy; and submitting the standards to the Director General or,

as appropriate, to the Board of Governors for approval after endorsement by the Commission. IAEA technical officers are responsible for ensuring that documents are prepared and reviewed expeditiously and that they are technically sound.

Publication of the IAEA safety standards

Following the introduction of the preparation and review process in 1996, the IAEA Safety Series was replaced by two new series of safety related publications, namely: the **Safety Standards Series** and the **Safety Reports Series**. The purpose of establishing these two categories was to separate the IAEA safety standards publications which spell out safety objectives, concepts, principles, requirements and guidance – as a basis for national regulations, or as an indication of how various safety requirements may be met, i.e. safety standards – from those publications which are issued for the purpose of fostering information exchange in safety, i.e. safety reports.

The publications in the Safety Standards Series are issued pursuant to the IAEA’s statutory function to establish safety standards. The publications in the Safety Reports Series are issued to foster the exchange of informa-

tion on ways of ensuring safety. The change took effect in 1996, with the publication in the Safety Standards Series of the latest edition of the *Regulations for the Safe Transport of Radioactive Material* as Safety Standards Series No. ST-1.

The Safety Standards Series comprises the following levels of documents:

Safety Fundamentals



Safety Requirements

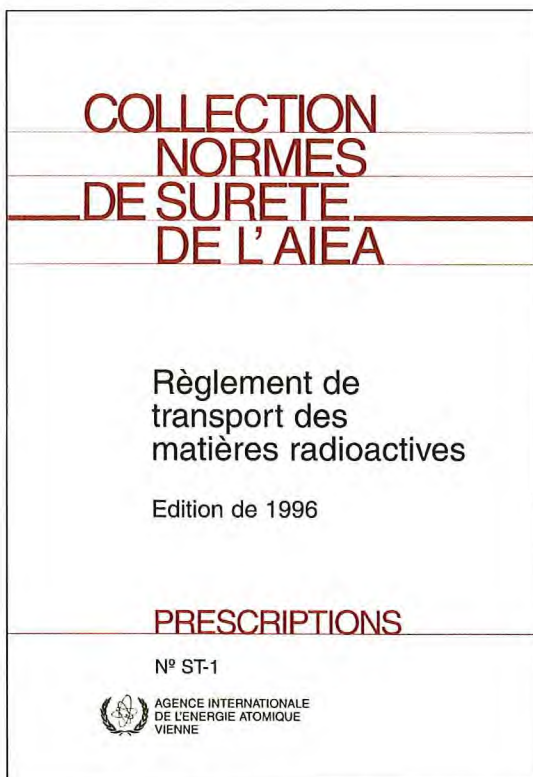


Safety Guides

The Series covers nuclear safety, radiation safety, radioactive waste safety, and transport safety. It also covers general topics (such as legal and governmental infrastructure, quality assurance, and emergency preparedness). All standards at the level of Safety Fundamentals and Safety Requirements require the approval of the IAEA Board of Governors before publication. Safety Guides are issued under the authority of the IAEA Director General.

The **Safety Fundamentals** documents are the “policy documents” of the IAEA Safety Standards Series. They state the **basic objectives, concepts and principles** involved in ensuring protection and safety in the development and application of atomic energy for peaceful purposes. They state – without providing technical details and, as a rule, without going into the application of principles – the rationale for actions necessary in meeting Safety Requirements. Three Safety Fundamentals publications exist in the Safety Series. They address the safety of nuclear installations, radiation protection, and radioactive waste management.

The **Safety Requirements** deal with the **basic requirements which must be met in order to ensure the safety of particular activities**. These requirements are governed by the basic objectives, concepts and principles presented in the Safety Fundamentals documents. The written style (with ‘shall’ statements) is that of regulatory documents so that the Safety Requirements could be adopted by States as national regulations.



IAEA safety standards: Regulations for the safe transport of radioactive material

The **Safety Guides** contain **recommendations** (using 'should' statements), based on international experience, regarding measures to ensure that the Safety Requirements are met.

Outlook

By late 1995 there were over 100 safety standards covering the four areas of nuclear, radiation, radioactive waste and transport safety published in the IAEA Safety Series. Since the establishment of the IAEA Safety Standards Series in 1996, seven safety standards (two safety requirements and five safety guides) have been published. There are currently 72 safety standards in preparation, (one safety fundamentals, nine safety requirements and 62 safety guides). It is expected that additional 12 safety standards will be published

in the year 2000 and 23 in the following year. These are primarily revision of safety standards published prior to 1995.

The full list and the status of the IAEA safety standards is available on the Internet under the IAEA/WorldAtom/Nuclear Safety (<http://www.iaea.org/ns/CoordiNet/safety-pubs/sftypub.htm>).

The Commission, at its meeting in December of 1999, initiated the process for development of a common Safety Fundamentals covering nuclear, radiation, transport and radioactive waste safety, to replace the three existing Safety Fundamentals. The commission is also looking at the need for safety standards for fuel cycle facilities. A decision on the type of standards to be prepared and types of facilities to be covered will be made by the end of this year.

Free opinion on the benefit of an International Regulatory Review Team (IRRT) mission of the IAEA

by **Serge Prêtre**, former Director of the Swiss Federal Nuclear Safety Inspectorate

In each nuclear country, a Safety Authority was set up at the beginning of the nuclear power programme. The way to start the supervision, the political climate prevailing at that time and the first persons who led that activity contributed to the creation of a national nuclear safety culture. At that time, there were large differences between nations, international recommendations were scarce and some countries, such as Switzerland, did not simply want to copy the American system.

The legal basis also influenced in each country the development of a nuclear safety national philosophy. In Switzerland, the 1959 Act still in force (two revisions have failed and the third one currently does its best not to fail) does not say much. It allows understanding nuclear safety as one wish provided it is successful.

It is in such a context that the Federal Commission for the Safety of Atomic Installations (CSA) was created and fitted with a standing secretary. At that time, almost all the nuclear intelligentsia used to work at the Federal Institute for Reactor Research (currently the Paul Scherrer Institute) in Würenlingen. And there did the nuclear Safety Authority start crystallising. As a consequence it is an emanation of a research institute and it has kept for a long time this state of mind.

As it was growing up, this authority enlarged its field of action but it did not abandon its nature as a scientific institute, while in other countries the evolution was rather towards a legal or even police mentality.

When I took over the direction of this authority (which became HSK, the Swiss Federal Nuclear Safety Directorate), I realised more and more clearly, in contact with my peers during IAEA or OECD/NEA meetings,

that there were important differences from one country to another as regards to authority operation. In particular, I felt that international development was going towards nuclear safety authorities requesting always more from operators, becoming more formalistic or evolving as inspectorates.

In Switzerland, safety traditionally focused on scientific or technical assessment of the design and construction of systems and components, on plant modification, on maintenance programmes and on all aspects of radiation protection and emergency response. A lot of recommendations having an incentive but not a prescriptive nature were issued. But the situation was far from being over regulated. Traditionally, emphasis had also been put on supervising the training of staff to whom a licence is given after an examination.

But it is in its plant operation, its organisation's management and the development and implementation of its working processes that we left a large freedom to the operator. To simplify, it can be said that supervision focused much more on installations than on operators.

Quite rightly the first Operational Safety Assessment Review Teams (OSART) underlined this peculiarity. However modifying a 30-year-old culture requires a long time. The December 1998 IRRT confirmed this state of affairs and highly insisted upon our lack of formalism and our weaknesses in the operational safety field. Whereas our inspections took place in a courteous climate of scientific dialogue and remained restricted to a precise technical issue, the IRRT taught us that the inspector should not discuss but supervise. In performing his duties, he should make apparent the formal pedestal which separates him from the supervised operator

and also expand his observations to operational aspects such as tidiness, cleanliness, procedures awareness and compliance, technical competence, safety culture, etc.

Without willing to transform a scientific organisation into a police one, I acknowledged that our way of practising operational safety – though having led up to now to good results – should evolve in view of the challenges arising from deregulation and electricity market opening. It is with this in mind that a reorganisation of HSK was achieved during 1999 and that an action plan in eight points was launched. The objective is roughly to broaden the domain of supervision, to introduce a quality management system and to add watchful inspector culture to that of scientific expert.

But – irony of fate – at the time when we were judged on the basis of criteria highly influenced by the American system of a nearly police nature, the US-NRC prepared itself to change its tactics and started a revolution in nuclear safety leaving to the operators much more freedom in operating their plants. The new NRC strategy is more tolerant, less police oriented, more re-focused on the bulk of safety. Astonishing! Some aspects of this new philosophy look like the Swiss system before the IRRT!

Some more words about our independence. At the time of the IRRT mission, I had been fighting for more than 3 years for HSK to become independent from the office in charge of energy policy to which we report. The IRRT report acknowledges that this situa-

tion is unsatisfactory and recommends among others:

- that HSK get a more independent statute;
- that it be endowed with its own legal department;
- that it be more strongly anchored in the nuclear energy act;
- that it receive responsibility to prepare itself the wording of ministerial or governmental decisions regarding nuclear installation safety.

These recommendations were really welcome and arrived at the appropriate time. Part of the message was received at the highest level and, for a certain while, the impression was given that something was moving. The question was raised to create a National Safety Agency gathering all the authorities supervising potentially dangerous installations. This project is still in existence, but has unfortunately lost part of its initial momentum and it is somewhat on the wane. In the meantime a draft new act on nuclear energy has been circulated for comments, but, unfortunately, does not (yet) take into account the IRRT recommendations. A real pity. I hope that the follow-up mission will restart the momentum.

In summary: an IRRT mission has a very stimulating effect, which sometimes is even irritating. It forces to a deeper self-criticism, which is finally very useful. It puts in question the whole decision system and can, with some luck, give the needed external boost to exit from a national situation, historically fossilised, as there are some in every country.

EDF point of view on Operational Safety Review Team (OSART) mission of the IAEA

by **Georges Servièrè**, EDF, Director of SEPTEN

For a good understanding of EDF's point of view related to OSART missions, and to a large extent this is also valid for the WANO (World Association of Nuclear Operators) peer reviews, it is useful to have in mind some elements of context.

OSART missions are services designed and elaborated by the IAEA to be put at the disposal of Member States in general, i.e. independently from the structure and supervision mode of the Safety Authority in the country under consideration and independently from the size, the structure or the practices of the operator(s). Their designers aimed in a way for a universal product.

Amongst nuclear operators worldwide, EDF presents some peculiar characteristics, which we have a tendency to consider as specific.

The nuclear power plant fleet is highly standardised, which led to rules, procedures and practices themselves highly standardised and therefore often defined in a centralised way out of the plants, contrary to numerous foreign plants. The size of the EDF nuclear plant fleet induces that any suggested or requested change as far as behaviour or management is concerned must affect roughly 20000 EDF staffs, and possibly about the same number of staffs at contractors. As a consequence, there is a quite large inertia, with benefits and drawbacks, in terms of reactivity in front of external analyses or recommendations.

The size and structure of EDF have led it to implement its own safety management and supervision structure in this field at several levels, which is consistent with French regulations, especially the quality assurance order. This is why, for instance, EDF has a nuclear inspectorate at the level of the nuclear generation Division (DPN in French) and a

General Inspector for nuclear safety at the level of the chairman and CEO.

The EDF-DPN nuclear inspectorate performs on-site inspections of mainly two kinds: general safety assessments (EGS) and inspections or audits focused on special issues, generally common to several plant sites.

These EGS are in-depth assessments, which review all the issues dealing with plant operation (Operation, maintenance, fire protection, radiation protection, management...). They are conducted on the basis of assessment guides approved by the Division Management, which themselves rely on current reference safety requirements and on all the objectives, principles and procedures in force at EDF. In a way, it can be said that EGS are in-depth reviews in the same way as OSART missions, WANO peer reviews or INPO (Institute for Nuclear Power Operations) assessments in USA.

Obviously, these different kinds of reviews have some differences. The EGS are possibly more in-depth, due to the good knowledge that inspectors have of EDF practices, but also due to the time which is spent by them (two weeks on site, as much for preparation and as much for analysis). On the opposite, although EGS are "external" to a site and some foreign experts are involved, they are an EDF internal process. INPO reviews or WANO ones may be of a more independent nature. OSART missions are even more of an independent nature as they are requested by Member States, in fact by the Safety Authority.

For EDF, WANO peer reviews and OSART missions bring an external view whose importance and limitations are worth to be underlined.

A large number of these reviews, either EGS, OSART or Peer Reviews, have already been

performed on EDF installations. Experience feedback shows that OSART, as well as Peer Reviews, seldom reveal issues which were not already known and identified. However, even already known, the fact that they are highlighted and mentioned by experts from outside EDF, and above from foreign countries, give them sometimes a higher weight and/or credibility, especially at the level of plant staff. The instinctive reaction, sometimes observed when EDF head office or the French Authority expresses reservations or dissatisfaction, reaction consisting in saying or thinking "Again a whim or an additional request in an already overabundant flood", does not

stand anymore in the case of an international review. This nature is clearer for Peer Reviews than for OSART missions, possibly because operators have a tendency to better trust their peers. On the contrary, the more official nature of an OSART mission is per se a mobilisation and a commitment factor.

Moreover, even on known issues, discussion if not confrontation of points of view opens different prospects to involved parties as much in terms of understanding the reasons for which it can be done otherwise as in terms of feasibility and efficiency of different solutions or practices. These reviews are then

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The OSART mission to Golfech NPP was the 100th in the world and the 10th in France

an opportunity to acknowledge that one can have sometimes clearly more ambitious, however achievable, objectives but sometimes also it is needed to somewhat shake up the ambient culture. Especially in this respect, these reviews are very rewarding and very favourably perceived, and all the more as they are conducted by experienced professionals in each of the field of investigation.

Also, EDF finds a certain interest to send some staff, necessarily in a limited number of occasions for various reasons, to take part in international teams such as OSART missions in other countries.

Taking into account all these elements, EDF considers that OSART type reviews bring a

positive contribution which has to be underlined, but at the same time they should not be too large a burden for the plants. With this in mind, EDF has decided to incorporate altogether EGS, Peer Reviews and OSART missions in its supervision programme on the basis of 6 or 7 EGS, 1 or 2 Peer Reviews and 1 OSART mission each year. In addition, OSART missions and Peer Reviews include follow-up reviews. This represents an overall dense process, enabling however in its principle to reconcile the advantages of each process as much for plant's as for EDF head office's benefit, but also for external benefit (Authority, public...), without imposing to each plant too heavy a load, which might be counter-productive.

The difficult elaboration of international consensus

by **Dominique Delattre**, former DSIN inspector seconded to the IAEA, programme co-ordinator for development of radioactive WASTE Safety Standards and secretary of the WASSAC Committee

During the first years of implementation of what has become the International Atomic Energy Agency, it was for a while envisaged to set up an international Authority. The idea was rapidly abandoned and, since 1946, the golden rule is that of international consensus. This applies to any Agency's activity and in particular for establishing Safety Standards. Therefore all the issues related to the adoption of these Standards come to the level of consensus the Member States wish. This consensus can be very general and may be a "soft consensus". It can be more detailed aiming at a consensus on minimal requirements – that is to say on the current level of safety. It can also be at a higher level aiming at an incentive consensus.

Soft consensus is obviously useless. A consensus on minimum requirements is needed for providing a sound technical basis to international Conventions or European directives and to meet the needs of countries where improving the efficiency of, or even establishing, the regulatory control system must be a priority. Its elaboration is presented hereafter. If so wished by Member States, the method can be extended towards setting an incentive consensus upon the level of safety to be reached in the future.

When Safety Standards on well-developed technical domains are being prepared, it is generally not too difficult to reach a minimal technical consensus. The current general procedure is essentially based on this idea. All that has to be done is to gather a minimum number of experienced consultants to prepare the first draft documents, and to have it assessed and approved by a validation committee prior to its publication.

When dealing with new subjects – this is often the case in the radioactive waste

domain – where consensus does not exist a priori, this procedure is not optimum. Generally consultants can only represent their own views and, if the assessment committee works as a "registration Chamber", only downstream of the process, no sufficient warranty can be obtained on the level of the consensus reached. It was therefore necessary to modify the procedure, not to change it. And so, on the occasion of a change in the mandate of the Waste Safety Standards Advisory Committee (WASSAC), a modified procedure was implemented. It relies on:

- a review of the whole programme, with a view to identify needs, to optimise the number of documents and to manage interface with other programmes. This also prevents the Committee from examining documents one at a time at the end of the process, which could then consist only in a registration;
- the a priori adoption, for each document, of a "Document Preparation Profile" defining its objectives and technical content on the main items. A stronger implication of the WASSAC members was needed to identify at the Committee level, not at the consultants' one, the technical consensus existing or to be set up;
- the re-appropriation of a tool, the WASSAC Subgroup, to carry on investigations needed to consensus elaboration when it does not exist a priori;
- a detailed review by the Committee of the draft documents, before they are sent to Member States. For this review to be efficient, the responsibility of Committee's members had to be improved. The adopted approach was to avoid transmission of draft documents at the last moment, as it was

often the case in the past, to leave sufficient time to Committee's members for an in-depth review, including consideration of the comments from the concerned organisations in their countries, to ask them to prepare a synthesis of their most important comments and to organise the discussion on the basis of this synthesis at the plenary meeting of the Committee. Bearing this responsibility also implies an actual implication of the Committee in the documents, to ensure that they are of good quality and useful for the international community. It is important to prevent an approval only based on the fact that members have no problem with the draft in their country – that would be the case for a document involving a soft consensus, or even a void content! The better involvement of the WASSAC members also improves the sense of responsibility of the staff in charge of drafting the documents.

This new method of work has been now set up for more than one year for the WASSAC Committee. It starts bearing fruits. Particularly the Committee has worked towards merging documents and has reoriented some projects, which had been submitted to it. It is an efficient first step if, for the whole programme and for each document, the Committee issues an advice and concrete proposals on orientation to be taken, which then become a mandate for consultants engaged in the draft's revision.

Much remains to be done:

- to have an overall approach on issues related to safety and to decrease the barriers between nuclear safety, radiation safety, waste safety and transport safety. This implies first an improvement of the internal coordination process. Moreover an annual

common meeting of RASSAC and WASSAC Committees is now set up. The first one occurred in April 2000. Such an approach could be extended in the future to NUSSAC and TRANSSAC;

- to improve the exchange between Member States on items where consensus remains to be set up. For this purpose, meetings at the level of "Technical Committee Meetings" and Committee meetings are places where exchange can take place. Member States can use this opportunity to explain their position and exchange their experience, at the multilateral level and then as a complement to numerous bilateral exchanges. This exchange is a key step to come to a consensus and to give a momentum for future changes. The WASSAC Subgroup should also actually build a new consensus;

- to have at one's disposal a tool to measure interest and efficiency of published Safety Standards. In this respect, the use of these Standards during the setting of international Conventions, European directives or during regulatory system peer reviews performed at the request of Member States (International Regulatory Review Team) provides an opportunity to compare publications and their actual implementation and to identify issues being worth improving.

I am convinced that international Standards will play a more and more important role in the exchange globalisation context. Their quality shall then always be improved for implementing and updating the consensus on minimum requirements, before envisaging, if it is a Member States wish, to extent it to the elaboration of a more incentive consensus.

NEA – Towards a stronger strategic vision

by **Luis E. Echávarri**, Director-General of the OECD Nuclear Energy Agency

The NEA, which recently celebrated its fortieth anniversary, came into being at practically the same time as the International Atomic Energy Agency (IAEA) and EURATOM. This provides some measure of the extent to which the international community, in the wake of the Second World War, felt the need, through the peaceful use of the atom, to put in place the energy resources which would be capable of ensuring not only the economic recovery of the industrialised nations affected by the war but also the advancement of less developed countries. The OEEC (the forerunner of the OECD) held the view that nuclear energy had a crucial role to play in the successful implementation of the Marshall Plan.

The changing role of governments

At present, against a background of economic globalisation and sustainable development, the role that nuclear energy can play in helping OECD Member countries meet their primary objectives is still as important as ever, and the NEA, whose members account for some 85% of total installed nuclear electricity capacity world-wide, has a duty to undertake a lucid review of its goals and strategy.

The *NEA Strategic Plan*, adopted barely a year ago, is based on the perceived need to maintain and strengthen, through co-operation at the international level, the scientific, technological and legal bases needed to ensure that nuclear energy is used in a manner that is at once safe, economically competitive and environmentally friendly.

The deregulation of the electricity market and privatisation of production capacity will both have a major impact on the nuclear energy sector. However, governments will continue to have a vital role to play in creating a stable working environment in which long-term issues relating to electricity supply can be addressed effectively.

Governments have traditionally played a major role in the organisation of research and development in the energy sector, and particularly so in the case of nuclear energy. In addition to their close involvement in the licensing and inspection of nuclear installations, governments will continue to have a part to play in ensuring, either directly or indirectly, the continued existence and development of a robust scientific, technological and legal infrastructure in the nuclear sector.

Safety and regulation — A more focused strategic vision

In view of the fact that many problems in the nuclear domain, for example safety, liability, waste management and public support, have an international dimension, governments have much to gain from authoritative international assessments and converging points of view. They can also draw upon enhanced international co-operation to support their efforts to safeguard nuclear expertise and a sound scientific and technological infrastructure by pooling ever-scarcer national resources.

Many nuclear power plants and associated nuclear fuel cycle facilities are currently in operation and will remain in service in NEA Member countries. Maintaining a high level of nuclear safety and improving the quality and effectiveness of nuclear regulations are two closely linked objectives that the Agency will continue to pursue, since they are the prerequisites for ensuring the viability of nuclear energy alongside the other energy sources chosen by OECD Member countries.

These are precisely the goals addressed in the new *Strategic Plan*¹ setting out the NEA's priorities, the first of which being safety. The

1. The *Strategic Plan* can be consulted on the NEA website at <http://www.nea.fr/html/pub/>

Plan establishes the Agency's three major objectives in this area:

- to act as a forum for the exchange and sharing of information and experiences, and to promote international co-operation;
- to serve as a centre for nuclear expertise capable of helping Member countries safeguard their knowledge and know-how;
- to develop analyses of general policy and to seek a consensus, on the basis of technical research, in areas of interest to Member governments.

The research that the NEA has conducted in the past on safety and regulatory activities has led to greater insight into, and an improved understanding of, how nuclear installations behave, the framing of new procedures, more effective training, and advances in hardware and software, thereby enhancing confidence in the operating safety of plants. As a result of exchanges of information and the sharing of experiences, future efforts will be directed towards maintaining, and in time improving, performance levels, and towards resolving current and future safety and regulatory problems.

As a centre of nuclear expertise, the NEA will be called upon to step up international co-operation on the new issues with which the nuclear community will find itself confronted such as extending the life of reactors currently in service and the safe decommissioning of nuclear power plants at the end of their useful life.

To draw technical policy conclusions with regard to safety and regulation, to reach consensus and to provide summary reports and recommendations to national authorities on the basis of analyses of practices and the lessons drawn from shared experiences, these are the ambitious goals the NEA intends to pursue by drawing on the wealth and diversity of the work carried out jointly by its members.

The instruments of international co-operation

The specific responsibilities of the NEA in the area of safety and regulation are shared between two large standing technical committees composed of leading specialists from Member countries, namely the Committee on the Safety of Nuclear Installations (CSNI)

and the Committee on Nuclear Regulatory Activities (CNRA)². The originality and value of these committees lie in the international networks of experts they have set up in the various areas they cover.

The remit given to the CSNI is to assist NEA Member countries in maintaining and further developing the scientific, technical and regulatory knowledge base required to assess the safety of designing, constructing, operating and decommissioning nuclear reactors and other civilian nuclear installations.

The CNRA is responsible for the programme of the Agency concerning the regulation, licensing and inspection of nuclear installations with regard to safety. The Committee primarily addresses regulatory issues that concern power reactors and other nuclear installations currently under construction or in service; it also studies the impacts at the regulatory level of new design concepts for power reactors and other types of nuclear installation.

The Committee provides an international forum in which regulatory bodies can exchange information and data they have gained through experience, and also helps Member countries forge links between regulatory authorities, carry out critical reviews and implement quality assurance programmes.

The NEA and the IAEA — A necessary complementarity

From the very onset, the NEA and the IAEA (a specialised UN agency) were destined to work together, given their membership base, requirements and respective know-how. An agreement to this effect was signed by the two agencies as early as 1960 and a new protocol is currently being drawn up with a view to strengthening synergies between their programmes while at the same time avoiding duplication.

In the area of safety and regulation, the NEA focuses in particular on operating experience, research and co-operation between nuclear regulatory authorities. Because the NEA is a small organisation with a relatively

2. See the article on NEA Committees in this issue.

uniform membership base in terms of the ability of Member countries to work together on in-depth research projects, the NEA, despite its limited budget, can devote itself to advanced research activities and the organisation of joint research projects.

The work of the IAEA in the area of nuclear safety, on the other hand, consists in developing international legal instruments – such as the Convention on Nuclear Safety – which play an increasingly important role in improving safety in the international community at the global level.

The IAEA helps to ensure that high safety levels are established and maintained for nuclear installations, both in the design stage and during construction and operation, by developing safety standards and guidelines and by providing advice and safety assessments of nuclear installations.

The NEA, in partnership with the IAEA, operates the international Incident Reporting System (IRS) which is used to identify and analyse in detail events that are significant to safety and to reduce or eliminate the possibility of such incidents occurring in other installations.

Conclusion

Safety is the most important factor for the continued use of nuclear energy. The multilateral co-operation that the NEA has put in place in this area, by enabling a better dissemination of knowledge and allowing scientific advances to be made on a regular basis through jointly funded research projects, will for the foreseeable future remain an essential component of the continued development of nuclear technology based on shared values and the optimised efficiency of safety practices.



The international Incident Reporting System (IRS) jointly operated by the NEA and the IAEA

The benefit for nuclear regulators of NEA's technical committees

by Jean Gauvain, International Relations Department – DSIN

The programme of work of the Nuclear Energy Agency (NEA) of the Organisation for Economic Co-operation and Development (OECD) is developed and executed by seven major international technical committees composed of senior experts from member countries, with the assistance of an international Secretariat. Nuclear safety and regulation is the subject of three of them: the Committee on Nuclear Regulatory Activities (CNRA), the Committee on the Safety of Nuclear Installations (CSNI) and, to some extent, the Radioactive Waste Management Committee (RWMC).

Objectives and organisation of the committees' work

As regards nuclear safety and regulation, the objectives are to assist member countries to cope with nuclear installation safety problems by ensuring an efficient exchange of information on safety problems encountered, identifying generic issues and trends through exchange of data on safety-related operating experience and analyses, obtaining a better understanding of national regulatory requirements, harmonising regulations, and enhancing the efficiency and effectiveness of the regulatory process.

In addition, regular meetings are organised with non-member countries to promote co-operation with a view to improving their regulatory framework, their technology and their research programmes in nuclear safety.

The committees consist of delegates designated by NEA member countries' governments. They meet annually to discuss nuclear safety and regulatory issues, review the work achieved by the expert groups over the past year, and decide on future activities. The working groups of the committees meet once or twice per year, organise specialists meetings, workshops and international stan-

dard problem (ISP) in order to qualify computation methods.

The working groups consist of designated experts and a technical secretary from NEA. The basic work relies on documents prepared by the experts in the frame and with the funding of their own organisation, or, when necessary, by specific sub-groups also funded by their organisations. This approach limits the own contribution of NEA to technical co-ordination and documentation circulation.

The reports from the working groups concern state-of-the-art on safety issues and enhance the NEA data bank regarding accidents physics, accident management and computer codes able to be used to safety assessment. The groups propose collects of good practices arising from their exchanges.

Activities of the committees and their interest for the Safety Authority

The main activities of CNRA, which was set up in 1989, concern the exchange of information and experience among regulatory organisations and the review of developments, current practices and operating experience, which could affect regulatory requirements. The CNRA proceeds to informal exchanges on recent nuclear power plant events with regulatory significance, on the evolution of regulatory requirements in member countries, and on regulatory measures under consideration. The CNRA also discusses issues, which will present new challenges to nuclear regulatory bodies over the next years (e.g. as a result of ageing of nuclear power plants or as a consequence of deregulation of the electricity market). Finally, one area that requires continued and specialised regulatory attention is that of inspection practices. The CNRA has set up a Working Group on Inspection Practices to exchange information on inspection practices for nuclear energy facilities in order to

maintain and improve the levels of safety in the construction, operation and maintenance of those facilities.

The main tasks of the CSNI which was set up in 1973 are to exchange technical and scientific information and to promote collaboration between research, development, engineering and regulatory organisations, to review the state of knowledge on selected topics of nuclear safety technology and safety assessments, to collect and review installation operating experience, to conduct international research aiming at harmonising practices and at giving an added value to national programmes of member countries by enabling the best international experts to work together in their field and to elaborate common positions on problems encountered. The CSNI has set up working groups composed of experts in the areas of risk assessment, accident analysis and management, integrity of components and structures, operating experience, fuel safety margins and human and organisational factors.

The Radioactive Waste Management Committee (RWMC) is an international committee made up of senior representatives from regulatory authorities, radioactive waste management agencies and research and development institutions. Its purpose is to foster international co-operation in the field of radioactive waste management amongst the OECD member countries. The newest of its working groups is the Waste regulator working group, set up in 1998, whose objectives are to exchange information and experience among regulatory organisations and to review developments which could affect regulatory requirements. This working group reports also directly to CSNI and CNRA.

On the regulator's management side, the committees, through their exchanges of views and elaboration of common positions,

allow the confrontation of advantages and drawbacks of methods applied by the different regulators and concerning fields as diverse as safety culture dissemination, work organisation, quality systems, tasks prioritisation, performance assessment or internal and external communication.

On the scientific and technical side, the committees, by producing synthetic state-of-the-art reports, allow the regulatory international community to take benefit from the latest results from research concerning understanding, prevention and management of incidents and accidental situations. Also, NEA put in place the incident reporting system occurring at nuclear reactors (IRS) and at fuel cycle installations (FINAS), which allow to inform quickly and in a standard form each country on circumstances, causes and consequences of incidents which have occurred on a nuclear installation. At the end of 1999, NEA set up on the Internet a live notification system, open to regulators of all countries operating nuclear installations, for all anomalies or events connected to the Y2K issue. Due to its broad use, each country was able to know the status of each reactor in the world as soon as the date was changing in the corresponding time zone.

Conclusion

If, due to the participation restricted to OECD member countries, NEA does not aim at establishing internationally recognised recommendations – which is the role of IAEA –, it promotes a quick mutual information exchange on the best knowledge and practices regarding safety. Moreover, the work being mainly performed by the experts from the different member countries, the topics which are covered are always central to their concerns and the amount of used resources remain at a low level.

The activities of the Directorate General for the Environment in the field of nuclear safety: objectives and future developments

by James Currie, Director General for the Environment, European Commission

Introduction

In this article, we restrict ourselves to aspects of nuclear safety beyond the scope of the European Treaties, i.e. nuclear safety which is the responsibility of Member States. As a consequence, we exclude such fields as radiation protection covered by the Euratom Treaty, and the environmental impact studies covered by the Treaty establishing the European Community.

In this respect, the objectives of DG Environment are to promote a high level of safety and environmental protection in Europe, in all our fields of activities, in support of, and in close co-operation with, Member States. These fields of activities include: nuclear installations safety, waste management, decommissioning of nuclear installations and rehabilitation of contaminated areas. In each field, we co-operate with numerous partners in the European Union, in Central and Eastern European countries and in the Newly Independent States (NIS). Nuclear safety is an important element in the preparation for the enlargement of the European Union, which should be well co-ordinated at European level.

The article gives an overview of these activities and of the future developments currently being envisaged. For further information, refer to our web site:

<http://www.europa.eu.int/comm/environment/nuclear/index.htm>

Fields of activities

Safety of installations

The Nuclear Regulators Working Group (NRWG) is an advisory group composed of

representatives of the European Union (EU) Member States and, more recently, of representatives of candidate countries. Switzerland takes part as an observer. The NRWG is a discussion forum in which European regulators share their experience on nuclear safety matters with the aim of an enhanced harmonisation. In this context, harmonisation consists of striving for a mutual understanding of the different national practices so as to reduce unnecessary differences.

The NRWG has been working for 25 years mainly in the framework of two Council resolutions on technological problems connected with nuclear safety. An important collection of technical reports has been produced and they constitute an essential reference in this field. The NRWG co-operates with other Commission services and international organisations with the aim of avoiding possible duplication of work.

Another working group (RSWG) concentrated up to 1998 on different aspects of technical harmonisation on nuclear safety, with participation of Safety Authorities and operators, the latter bearing the prime responsibility for operational safety. This group was replaced by ENIS-G (European Nuclear Installation Safety Group) with representatives of all Safety Authorities and operators from Member States and candidate countries. ENIS-G aims at integrating the main Eastern European actors in nuclear safety in the co-operation structures and working methods of the Community.

DG Environment provides an important contribution to the accession negotiations preparations. Together with the other services, we prepare nuclear safety assessments in Central and Eastern European countries

for the Commission annual reports on the accession process.

We programme the assistance to Safety Authorities in Central and Eastern Europe countries and Newly Independent States in the framework of the Phare and Tacis programmes. For this programming activity, we rely on our expert groups, RAMG (Regulatory Assistance Management Group) and TSOG (Technical Support Organisations Group), whose activities are described below in more detail. The CONCERT Group was also created by DG Environment; it contributed significantly to the development of the co-operation between all nuclear Safety Authorities in Europe. The next article describes the CONCERT Group.

Radioactive wastes

The European Commission has been active in the field of radioactive waste for a long time: a Community action plan was initially adopted by the Council in 1980 and in 1992, and was successively extended up to the end of 1999. The plan included at the level of the Member States the permanent analysis of the technical situation, the development of a technical co-operation in the field of long term storage or final disposal of radioactive wastes, concerted actions in the field of management safety and waste storage, consultation on management practices and strategies with a view to abolish custom controls within the Community, the continuity of interactions between research programmes and administrative, legal and regulatory questions, public information and the development of an international consensus. All the items of the Community action plan have been discussed over the last 20 years in the framework of the ACPM (Advisory Committee on Programme Management) whose secretariat is provided by DG Environment.

The radioactive waste question has today a higher political profile than it had in 1980 when the first plan was approved. Although progress has been achieved in numerous fields identified in the first action plan, much remains to be done.

As a consequence, a new plan, currently under preparation, should notably take into consideration the growing evolution of the

environmental dimension and of the moral aspects of waste management as well as the necessity for greater public participation in the decision process.

The new plan must take up the challenges due to the coming enlargement of the Community as several candidate countries have nuclear programmes based on Soviet technology. The actions should concentrate on assessing the situations and the waste management practices in these countries, evaluating their progression towards Western standards and assisting in establishing an advanced regulatory framework.

Since the end of 1998 DG Environment chairs the group of representatives of radioactive waste managers in candidate countries. An important contribution of this working group is the situation report and its executive analysis (issued by the European Commission under the reference EUR 19154 – available through the web site).

Waste management practices in the former Soviet Union still constitute an important threat for the European environment. The work should thus consist in improving the safety culture and encouraging the use of better technology in these countries. The Commission is particularly active within the CEG (Contact Expert Group) in the field of radioactive waste in the territory of the Russian Federation and chairs the SWG (Strategy Working Group) of the CEG.

Decommissioning

Nuclear installation decommissioning is a growing problem with ageing of nuclear installations. Today, more than 110 nuclear installations inside the Union are at different stages of their decommissioning. It is expected that another 160 industrial installations will be decommissioned over the next 20 years. The enlargement of the Union to Central and Eastern European countries will contribute to a rapid increase of the number of installations to be decommissioned.

In the European Union, nuclear techniques for decommissioning have been under development for more than 20 years. The technological research and development programmes of the European Commission have been their main reason. Decommissioning is becoming an industrially mature technology,

but it remains an activity which implies a wide spectrum of equally technically complex and expensive activities. Besides the technical aspects, it is time to look into the specific regulatory aspects of decommissioning. The existing co-operation within the European Commission R&D programmes on decommissioning and radioactive waste management gave access to information on a large number of international decommissioning and technical development projects. General information is available within the Community through the different EUR publications and the European Commission data bases on decommissioning.

Rehabilitation of contaminated territories

In the former Soviet Union, we will have to pursue our co-operation in the field of rehabilitation of contaminated territories which is still an important issue in some regions. Our action is more precisely directed at two critical zones located around the industrial complex of Mayak and around Chernobyl. The Commission is more particularly interested in the emerging problem of wastes coming from uranium mining industries and in the rehabilitation of the adjacent industrial sites. The problem is particularly acute in some candidate countries where few rehabilitation actions have been initiated in the past and financial resources are limited.

Future developments and conclusions

The objectives for the future remain ambitious and important and they correspond to the challenges mentioned earlier:

- safety culture in Eastern countries: despite progress already achieved partly due to the Community assistance, much remains to be done on safety culture, especially in NIS;
- progressive integration of candidate countries (future Member States) having nuclear installations in the co-operation structures of the European Union;
- preparation for the decommissioning of numerous reactors, more so for Soviet type reactors for which closure dates have been agreed, in countries which have a limited experience with the decommissioning processes;
- promotion of appropriate technical solutions for the disposal of high level radioactive wastes;
- actions towards the public on the problems connected with nuclear installations management and radioactive wastes.

Obviously, these objectives will not be met without the full co-operation at European level between Member States and candidate countries, co-ordinated by the European Commission, together with the co-operation and co-ordination with national and international organisations which are, for different reasons, active in the nuclear field.

The CONCERT and RAM Groups

by **Aníbal Martín**, Chairman of CONCERT Group
and **Richard Bye**, Chairman of RAMG

Nuclear Safety in Central and Eastern Europe and the Community of Independent States has been the subject of significant attention and international assistance and co-operation efforts over the last decade. Over the coming years the importance of nuclear safety is expected to be rising, in particular with regard to those countries involved in the European Union enlargement process. In parallel the relative importance of co-operation is steadily increasing, in particular amongst nuclear regulatory authorities. The CONCERT Group and the Regulatory Assistance Management Group (RAMG) constitute key aspects of this process.

The CONCERT Group

In 1992, the European Union countries and the European Commission initiated, as part of the Phare and Tacis programmes, specific programmes to assist the regulatory authorities of the Central and Eastern European countries and the Newly Independent States. Because these programmes are managed by the RAMG (see below a description of its role and achievements), they are often referred to as the RAMG programmes. The European Union countries and the European Commission also felt the need to promote a dialogue with these regulatory authorities and to this end they created the CONCERT Group. Its early meetings consisted of set presentations and little discussion, since then there has been an evolution towards a participation of all parties on equal bases in discussions characterised by openness and a willingness to learn from the experience of others.

A significant milestone was the encouragement to these regulatory authorities to produce their own improvement plans and to report in an open manner on progress to their peers in the CONCERT Group : this initiated very constructive discussions.

The activity of the Group is now evolving from assistance to co-operation. This change led to an improved transparency and understanding of different regulatory regimes thus contributing to further improve nuclear safety regulatory regimes across Europe : a new and more mature phase is starting in which experience can be gained by all parties involved, facilitating a two way process as compared to the previous one directional one. In 1998 the Group approved new terms of reference and revised its structure and working methods in order to consolidate this new stage.

Senior Regulators represent the member countries of the Group which is composed of four countries from the New Independent States, fifteen from Central and Eastern Europe and ten active members of the European Union. The Secretariat and required services are provided by the Commission. The Group is chaired by one Senior member of a Western Regulator. It is attended by the RAMG Chairman and operates under the auspices of the European Commission. It maintains liaisons with other international groups working in this field and provides a common forum to discuss topics of common interest. The Group meets twice a year, the summer meeting usually being combined with a technical visit.



The CONCERT group members during their meeting from 16 to 19 June 1998 in Ljubljana (Slovenia)

A living Programme of Work has been developed which contains topics of particular interest identified by the members and rated for importance. It is accessible to all members and it is reviewed regularly. Topics to be discussed at a specific meeting are proposed by the Bureau who selects them from this Programme of Work.

The Group has interchanged ideas and discussed topics of particular relevance during the most recent meetings, namely the role of the regulatory authority in emergency preparedness, its public information policy, the regulatory review of plant design modifications, the impact on nuclear safety of the Year 2000 (Y2K) computer problem and factors affecting regulatory effectiveness.

With regard to these topics, the Group has achieved a set of conclusions. Some examples of the main outcomes are :

- The need for a clear definition of functions and responsibilities, good co-ordination among the different national organisations involved, international co-operation, including joint emergency exercises among neighbouring countries, were identified by the Group members as being fundamental for adequate emergency preparedness.
- While the responsibility to guarantee that plant modifications are performed safely and in accordance with regulations rests with the plant operator, the regulatory authorities need to have in place the regulations and criteria to allow an effective control of those modifications. This control is essential to ensure that the plant modifications do not lead to a reduction of the safety level of the plant.
- A free and proactive approach of the regulatory authority to public communication was recognised as an indirect but clear indicator of its effective independence. The publication of regular (e.g. annual) reports and frequent press releases is the preferred means of dissemination of information, together with maintaining a web site.
- A regulatory system is effective when the utilities consistently do all that they should to maintain or improve safety. An effective regulatory body is one that ensures an acceptable level of safety, acts to prevent degradation of safety, is timely and cost effective, ensures the confidence of operators, general

public and government, and strives continuously for improved performance. In recent years, regulatory authorities are moving towards improved management processes.

The CONCERT Group exhibits specific characteristics aimed at facilitating the improvement of nuclear safety levels and nuclear regulatory effectiveness across the entire Europe, tackling questions of specific European interest. It provides a relevant and unique tool for western regulators to support their common policies and their increased attention is expected to support the group activity.

The Regulatory Assistance Management Group

The Regulatory Assistance Management Group (RAMG) has a completely different but complementary mandate to the CONCERT Group. It was set up under the Nuclear Regulators' Working Group as an advisory group to DG Environment for the implementation of regulatory assistance in the frame of the Phare and Tacis programmes. The group is composed of representatives from the nuclear safety authorities of European Union Member States who provide the regulatory assistance to the CEEC and NIS. From the start Sweden and Finland contributed to the work even though they had not yet joined the European Union and, following contractual difficulties, Ireland and Denmark found it necessary to leave the group. RAMG's work was formalised in July 1992 in a Memorandum of Understanding between members, which specifies the type of work to be carried out and the basis of contractual links with the Community. A chairman is elected from the members for a term of two years, which can be extended if agreed by RAMG members, and DG Environment provides the secretariat.

The RAMG's objectives are to define, organise and put into effect the assistance to regulatory authorities in the CEEC and NIS and to advise the Commission on relevant aspects of the regional support programmes for these countries, to advise on requests from recipient countries in order to avoid duplication and to review the achievements of the programme. As all of the members are the designated nuclear regulators of their respective

countries they have a thorough understanding of regulatory practice in their own countries and have developed a mutual understanding of the problems of their counterparts. The work has been very successful but as it involves trying to change attitudes and to transfer western methodology and practices rather than providing equipment or a specific safety assessment it is difficult to measure the degree of success. It was essential to develop a close level of co-operation with the recipient and continuity of the people involved on both sides has proved to be an important factor.

The aim of this work is for Western regulatory authorities to provide expert assistance to help develop strong, independent regulatory authorities in the countries of the CEEC and NIS. Initially a series of exploratory missions were carried out with the aim of identifying the needs of each country and then projects were developed in close co-operation with the recipient country to implement the recommendations. These projects included providing advice on regulatory body restructuring, organisation and working practices and gave assistance and advice on any matters connected with putting into effect or strengthening licensing regimes. Some of the

group's projects have included training in inspection and assessment methodologies and advice on nuclear research on topics identified as necessary to support regulatory activities. In most cases a substantial part of the work has been advice on setting regulatory nuclear safety standards within the licensing regime and on the regulatory approach relating to licensing and regulation of nuclear installations at all stages of the design, construction, commissioning, operation and decommissioning.

Over the years of this work the people involved on both sides have got to know one another well and the dialogue is much more open and free than it was at the start. Most of the recipient countries have made great improvements in the way nuclear installations are regulated, although some did not need to make major changes and others are not yet making the progress that had been hoped for. The RAMG is made up only of members from the European Union, so joint lessons learned from this work are discussed openly in the CONCERT meetings. It is unfortunate that the work on new projects is currently being delayed by the European Commission but later this year it is hoped that it will restart.

REGULATORS ASSOCIATIONS

International Nuclear Regulators' Association (INRA)

by **Laurence Williams, HM Chief Inspector of Nuclear Installations, UK, Chairman of INRA**

The International Nuclear Regulators' Association (INRA) was inaugurated in May 1997 with the aim of providing a forum for a small group of senior regulators from the most developed nuclear nations to discuss issues of mutual concern and to make recommendations to strengthen nuclear regulation worldwide. Being free from the influence of existing international bodies such as the International Atomic Energy Agency and the OECD's Nuclear Energy Agency and by limiting membership to a small group, INRA aims to promote a very frank and open exchange of information and views. INRA does not duplicate the work of the other organisations that also promote nuclear safety and strong regulation but these organisations usually involve a much larger membership than INRA, are more formal, focus on more technically orientated issues and are generally attended by less senior officials. The creation of INRA has encouraged the formation of several other small groups of regulators, each with a different mandate.

The stated aims are to build a global nuclear safety culture, to seek international consensus on approaches to nuclear safety issues and to facilitate international co-operation to implement sound solutions, to co-operate with other international and national organisations involved in nuclear safety.

The membership of INRA currently consists of the chief nuclear regulators of Canada, France, Germany, Japan, Spain, Sweden, the United States and the United Kingdom. Dr Shirley Ann Jackson, the former Chairman of the US Nuclear Regulatory Commission, chaired INRA for the first two years and I have been elected as the current chairman. Meetings are held approximately twice a



The INRA members during their first meeting on 30 May 1997 in Paris. From left to right, Dr S.A. Harbison, Mr Lars Högberg, Dr Shirley Ann Jackson, Mr André-Claude Lacoste, Dr Agnes Bishop, Dr Juan-Manuel Kindelan, Pr Yasumasa Togo and Mr Tomihiko Taniguchi

year over two days, detailed minutes are not kept but a summary statement is prepared.

At the initial meetings, it was realised that national meaning of certain key regulatory terms was different and that a common understanding of key concepts was needed before further work could be undertaken. Members therefore concentrated on an in-depth discussion on five fundamental concepts, these being : Independence; the Regulatory Process; Regulatory Effectiveness; Powers and Sanctions and Internal Quality Assurance. INRA members view development of these concepts as a mechanism for understanding the processes in each others' countries and sharing best practice. An initial draft statement on all five concepts has been prepared and is presently being updated for discussion at the next INRA meeting. Since the value of the group's work is seen to be mainly the discussions themselves rather than a specific output document members will use the concepts initially as an internal working document but it will most probably be made more widely available when it has been refined.

In addition to the development of the five concepts, discussion at recent INRA meetings covered other topics of current importance. Discussion of the scope and responsibilities of the nuclear regulators in each member country revealed wide differences as well as common features. An understanding of these will be an input to developments in the various regulatory regimes. The discussions revealed that there were many common features in the education, training and experience each country requires from its inspectors but members are concerned at the reductions in the number of nuclear engineering and science courses available today in many countries and they discussed measures to alleviate this situation. Management of safety is another important topic discussed, it is particularly relevant where there is pressure on resources either from privatisation or inadequate funding.

Members have found INRA a useful way of establishing and maintaining personal contacts with their international counterparts and of exchanging information and ideas about the regulatory issues facing each country. This is of particular relevance at the present time when the chief regulators for USA, Sweden, Germany and Japan have changed recently and are bringing new ideas to the discussions. Although INRA is not presently considering expanding its membership, regulators of non member countries will be invited to attend meetings from time to time to help in the discussion of specific topics.

The INRA network complements other international information exchange arrangements between regulators in member countries and has proved useful in helping them to learn from recent nuclear incidents in various countries. Useful information was given on the criticality accident at the Tokai Mura uranium processing plant in September 1999 and the subsequent Japanese investigations. Valuable insights were also given into the flooding incident at the Blayais nuclear power station near Bordeaux and over the past few months the UK has been able to provide information on the falsification of Sellafield Mixed Oxide Fuel data.

The primary function of INRA is to create and maintain a network of chief nuclear regulators from the most developed nuclear nations. The informal environment of INRA meetings encourages uninhibited discussion of issues relevant to nuclear regulation within member countries as well as on a more global level. Through the development of the five fundamental concepts INRA aims to understand and share best regulatory practice between members. Familiarity between INRA members assists international collaboration in the event of a nuclear incident. Having developed consensus views on best practices, INRA members have the influence and authority to instigate such practices within their own organisations if they consider it appropriate to their regulatory framework.

Objectives and achievements of WENRA

by **André-Claude Lacoste**, Chairman of WENRA

The origins of WENRA

When the European Community started examining the requests by some Central and Eastern European countries to join the European Union, it stated that nuclear safety in the candidate countries would be among the accession criteria. As Head of the French Safety Authority, I will not regret it as, over the last few years, I have expressed my concern on this subject, and more particularly in former USSR countries. Nevertheless, taking account of nuclear safety as an accession criterion raises a particular problem as nuclear safety is not a Community competency : the Euratom Treaty confers on the Commission competency in the field of radiation protection as much as each Member State of the Union is responsible for the safety of its nuclear installations.

This led the Heads of the regulatory bodies of Member States of the Union to become conscious it was their responsibility to issue a technical opinion on nuclear safety in the candidate countries, whereas it is the duty of

political leaders to draw the corresponding consequences. After some informal meetings, they decided to formalise their cooperation in the Western European Nuclear Regulators' Association (WENRA) which regroups the highest responsible persons from these Authorities in Belgium, Finland, France, Germany, Italy, the Netherlands, Spain, Sweden and the United Kingdom. The association proposed to Switzerland, which accepted, to join it. Its statutes were signed on 4 February 1999. Its objectives are stated as follows :

- to develop a common approach to nuclear safety and regulation, in particular within the European Union,
- to provide European Union with an independent capability to examine nuclear safety and regulation in applicant countries,
- to evaluate and achieve a common approach to nuclear safety and regulatory issues which arise.

I have been nominated as its first Chairman for a period of two years.



The WENRA members with several experts during their meeting in Cordoba on 9 and 10 March 2000

The report on nuclear safety in candidate countries to the European Union

WENRA decided this report should consider all candidate countries with at least one nuclear power reactor, namely Bulgaria, the Czech Republic, Hungary, Lithuania, Romania, Slovakia and Slovenia, and should cover in two separate chapters on the one hand the situation in the legal and regulatory fields, and on the other the safety of the reactors.

The countries within WENRA shared the work for the different chapters ; it is important to stress that Switzerland did not participate in the report.

A first version was published and made available to the European Institutions in March 1999. Its main conclusions are presented separately.

As a reaction to this report, many were surprised to read that WENRA felt in some cases a lack of information to issue an opinion. Evidently, the explanations given in the introduction were not sufficient. In fact, among all the pieces of information available, WENRA could only accept to consider those which its members could verify : the seriousness of the subject imposed such an attitude. As a consequence, the main sources of information were the multilateral assistance programmes, particularly the Phare programmes, and the bilateral contacts. The choice made by WENRA does not put in question the existence of other sources of information nor the openness of the Safety Authorities and operators in the candidate countries.

In order to fill in the gaps highlighted by the first version of the report, WENRA decided to initiate a revision process and a second version is expected for the end of October 2000. In particular, so as to be able to issue an opinion on VVER 440-230 reactors (Kozloduy 1-4 in Bulgaria, Bohunice V1 in Slovakia), WENRA created a special Task Force in charge of gathering and analysing additional information.

Harmonisation of safety approaches

The second aspect of WENRA's work is to harmonise safety approaches. It certainly is the most ambitious one but it is absolutely necessary : how to explain to the public that one reactor could be given an operating licence in one European country and not in another, how to explain that one method for the interim storage of waste is safe enough in one country and not in another one ?

Being conscious that these are difficult and long term subjects, WENRA decided on a pragmatic and gradual approach, starting with three subjects : nuclear power reactors, waste management and transport of radioactive substances. After a preliminary analysis of the first two subjects, ad-hoc groups have been established and have defined their working methodologies which have been recently approved by WENRA, allowing real harmonisation work to start. In the field of transport, work is at a less advanced stage, an assessment currently being carried out to determine whether an ad-hoc group should be created taking account of the international character of the regulations in force.

The conclusions of the March 1999 WENRA report on nuclear safety in candidate countries to the European Union

by **Michel Asty**, Head, International Relations Department – DSIN

Issued in March 1999, this report is only based on information WENRA could verify.

WENRA noted that progress had been achieved in all candidate countries for their regulatory regimes and regulatory bodies, even if all had not yet reached the same development level. The report includes recommendations to bring these regulatory regimes and Safety Authorities to an internationally recognised level.

As concerns the nuclear plants, the conclusions drawn by WENRA take into account the types of reactors and, within each type, the characteristics of each reactor.

On the RBMK reactors of the Ignalina power plant in Lithuania, WENRA concludes that, despite all modifications which can be envisaged, the lack of an appropriate confinement is a major problem which cannot be reasonably solved. As a consequence, the Ignalina power plant cannot reach a safety level comparable with that required in Western Europe for the oldest reactors.

Slovakia is currently completing the implementation of a "large modernisation programme" of the VVER 440-230 reactors of Bohunice 1 and 2 : due to a lack of direct information on this programme, WENRA could not conclude.

The Kozloduy 1-4 reactors in Bulgaria, also of the VVER 440-230 type, have only received short term improvements which are not sufficient to bring them to an acceptable level of safety. Bulgaria has announced it intends to implement a large modernisation programme on which WENRA had insufficient information to conclude.

As far as VVER 440-213 reactors (second generation) are concerned, if it can be demonstrated that the confinement functions are correctly ensured with the modifications being implemented, these reactors should reach the safety level which is required for older reactors : this holds for the four reactors of the Paks nuclear power plant. After achievement of the modifications on both reactors at Mochovce (Slovakia), these will reach a safety level equivalent to that of Western reactors of the same vintage. On the other hand, WENRA had insufficient information to conclude on the Dukovany 1-4 reactors (Czech Republic) and on the Bohunice 3-4 reactors (Slovakia).

For VVER 1000 reactors, their design is based on safety requirements similar to those which prevailed in the West for reactors of the same vintage. Nevertheless, it is possible that they do not reach the same safety level as VVER 440-213 reactors due to their lower intrinsic safety characteristics. The main concern is with the quality and reliability of the systems (Instrumentation and Control, pressure vessel embrittlement, etc.). After the completion of their modernisation programmes, the Kozloduy 5-6 reactors (Bulgaria) should reach a safety level in compliance with Western standards. Due to a lack of direct information, WENRA could not conclude on the Czech reactors 1-2 at Temelin. Nevertheless, WENRA expressed its concern with the ambitious modernisation programme incorporating Western equipment to a level never attempted before (fuel and core lay-out, Instrumentation and Control).

Two candidate countries have reactors of Western design, namely Romania with the Cernavoda reactor, and Slovenia with the Krško reactor.

The Cernavoda reactor, of the Candu 600 type, was built and commissioned under the responsibility of a Western consortium. WENRA is of the opinion that further safety evaluations are necessary, for example on seismic risk. But the main concern remains with the financial situation of the plant.

The safety of the Krško plant (pressurised light water reactor of US origin) compares well with Western plants. It is submitted to a continuous improvement programme and one of the major challenges will be the replacement of the steam generators. But WENRA's main concern is with the financial stability of the plant which is co-owned with Croatia.

The complete WENRA report is available on the web site of the Safety Authority :
<http://www.asn.gouv.fr>

In order to fill in the gaps of its first report, WENRA has taken the appropriate steps to issue a revised version in October 2000.

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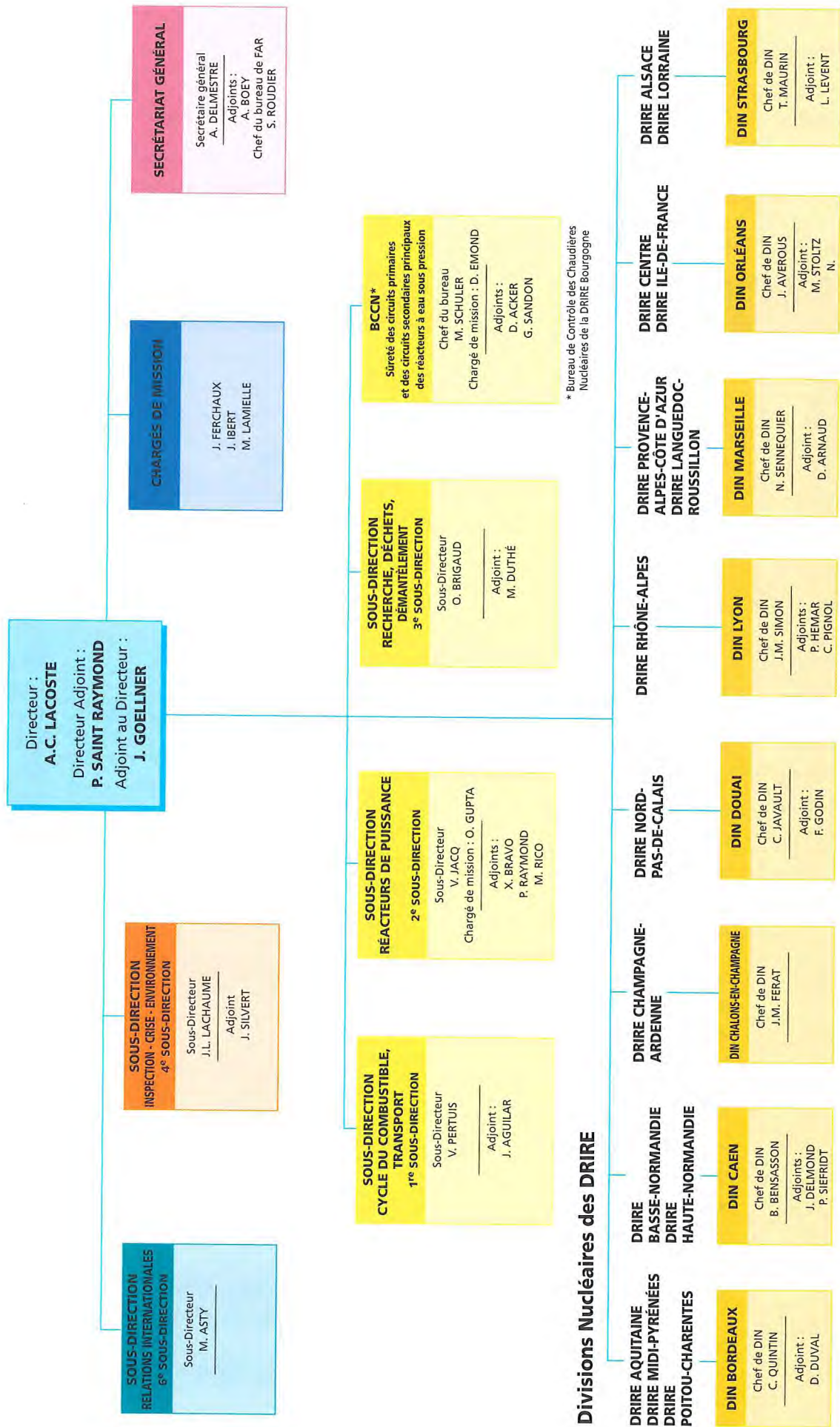
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