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Report from WATEC meeting 31 March – 3 April 2009

Dear Mr. Sokolov,

Please find attached the report from the WATEC meeting held 31 March – 3 April 2009. I also attach the agenda and list of participants.

On behalf of the Committee I want to express my appreciation for the invitation to give a presentation to Sagne 1 April 2009.

I also want to thank for excellent support from the Scientific Secretary and the staff at the Waste Technology Section.

Yours sincerely,

Magnus Westerlind
Chairman of WATEC

CC: Mr. J-M. Potier

WATEC 2009 REPORT

The International Radioactive Waste Technical Committee (WATEC) held its annual meeting at the International Atomic Energy Agency (IAEA) in Vienna between 31 March and 3 April 2009. The IAEA staff made excellent preparations for the meeting, structured around topical sessions chosen at the 2008 WATEC meeting.

The meeting focused on the following topical sessions:

- Strengthening RWM infrastructure in MSs planning to introduce nuclear power and in other developing MSs,
- Managing disused sealed radioactive sources, and
- RWM information systems.

This report also includes summaries of discussions on Issues and Trends in WATEC Member States, IAEA networking activities and presentations given by invited international organisations (EC, NEA and ISO)¹.

WATEC was welcomed on behalf of the IAEA by the Director, Division of Nuclear Fuel Cycle and Waste Technology. The Director set the overall context for the Waste Technology Section's (WTS) activities. Some of the Director's key messages were:

- In response to the increasing interest in nuclear power the IAEA is strengthening the support to countries considering introducing nuclear power, and it is stressed that radioactive waste management must be addressed from the very beginning
- Introduction of nuclear power will require involvement of advanced countries, and it will be necessary find mechanisms for cooperation both between and among newcomers and advanced countries
- IAEA is developing a new model for future assistance to MS, which will integrate activities funded through the regular budget and the budget for Technical Cooperation. Furthermore, a topical approach to Technical Cooperation is under consideration
- The cooperation with international organisations has expanded, e.g. with EC-AIDCO for the WWER benchmarking project
- There is a recognised good cooperation between WTS and WES, which WATEC has long advocated.

The Head of the Waste Safety Section gave a comprehensive summary of how the recommendations from WATEC's last meeting have been addressed in on-going and planned activities. WATEC was very pleased to note that the vast majority of recommendations have been considered by the IAEA and implemented by WTS.

Issues and trends in WATEC member states

Background

Prior to the meeting a questionnaire was sent to WATEC members to collect information on status and trends in their country, major developments and challenges in radioactive waste management. The information delivered was presented separately for MSs with (1) major advanced nuclear programmes; (2) small-to-medium sized nuclear programmes, and (3) only nuclear applications.

A summary of key issues and trends reported in WATEC member countries include:

¹ WNA was also invited and present during parts of the meeting.

- Policies and strategies are recognized as an important issue and progress in their implementation has been noted in most countries;
- Some countries have already established funds for covering RWM liabilities, several are preparing to do so;
- In several countries RWM has been privatised, in others nuclear industry is restructured to maximize state and market mechanisms;
- Public acceptance of waste management activities and facilities is still low in many countries, and more effective communication with the public is needed. In particular, siting of new disposal facilities remains a challenge for many countries;
- Several facilities for waste processing, storage and disposal VLLW and LILW have been planned, constructed and put into operation;
- Processing of low, intermediate and high level radioactive waste (not SNF) is becoming a standard, routine activity, including management of some specific waste. However, characterization and management of legacy waste is still challenge for some countries;
- Some countries report that disposal of long-lived low and intermediate level waste at depth is considered, while the disposal of SNF and HLW still remains in planning and development stages;
- Decommissioning of nuclear facilities becomes topical in most countries, and request for its planning has been often included in national regulations. However, unavailability of suitable disposal facilities creates difficulties for these plans;
- Remediation of several NORM sites has been completed, but some countries report that development of remediation criteria for contaminated land is a challenge;
- A number of countries are identifying the inventory of DSRS and established inventories, centralized information system or source tracking system;
- Collecting and conditioning DSRS for storage is practiced in most countries;
- Several countries are preparing for repatriation of DSRS to the USA, but high transportation cost is reported as a serious obstacle to the repatriation of sources in some countries;
- Conditioning of SHARS is being investigated in some countries;
- Disposal options for DSRS are studied in several countries, considerations include also the borehole disposal concept;
- Support is recommended to both repatriation of DSRS and the management of these sources nationally (local disposal may be safe and cheaper solution than repatriation);
- Optimization of RWM practices is needed for operators of nuclear power plants.

Conclusions, comments and recommendations

Following the presentations WATEC's discussion resulted in the following recommendations to the IAEA:

- To continue supporting and assisting MSs in training the manpower for maintaining and expanding radioactive waste management programmes, and in advising on RWM knowledge management;
- To assist and advise in activities aiming at increasing confidence in RWM technologies and facilities;
- To support regional cooperation between countries with similar RWM issues, including promotion of shared facilities and activities for radioactive waste management;
- To assist countries in cost aspects of waste management;
- To further support the networking activities
- To provide support to MSs needing assistance in the management of legacy waste.

It should be noted that some of these issues were also addressed in the Topical Sessions on Management of DSRS and Strengthening RWM Infrastructure.

Topical Session on “Strengthening RWM infrastructure in MSs planning to introduce nuclear power and in other developing MSs”

Background

Two IAEA presentations were provided as follows:

- Integrated Approach to Introduction of Nuclear power - the IAEA’s perspective;
- WTS planned and on-going activities to respond to MSs’ needs to strengthen RWM infrastructure.

The first presentation, followed by comments of WATEC members, highlighted the following:

- One of the major issues is development of the human resources to carry out regulatory and operating duties;
- Meeting the Radioactive Waste Management milestone is crucial since it has to be based on awareness of the fact that radioactive waste means long-term commitment and long-term liability.

The second presentation focused on WTS activities that should provide support to MSs with low volume of radioactive waste including DSRs, but also provided an overview of on-going and planned activities and initiatives in the Predisposal and Disposal areas. The following was highlighted:

- WTS in cooperation with WES has developed guidance document on Radioactive Waste Management Policies / Strategies that will be supported by guidance documents on Radioactive Waste Assessment Methodology and Economics of Radioactive Waste Management, to be published in 2010.
- These documents provide a methodology to fully understand the scope of short and long-term waste management needs and implementation of strategies. These documents are suitable for all MSs, including MSs with full fuel cycle activities.
- WTS has developed a set of design specifications for modular processing and storage for the MSs with low volume of radioactive waste including DSRs. This guidance on selection of technical options is integrated into a package that addresses inventory assessment, safety requirements in predisposal, development of safety assessment and safety case, development of WAC and assembling of all information into licensing application to design/construct and operate waste processing and storage facility. This package is further supported with already developed BOSS design package for borehole disposal.
- A plan to consolidate guidance on predisposal technologies (currently 68 documents) into 8 comprehensive handbooks, that could be periodically updated as need arises. Such guidance is envisaged to address the needs of all MSs.
- Technical documents on predisposal and disposal that are planned or in progress were presented, as well as activities on on-going and planned coordinated research projects. These activities are to address needs for RWM infrastructure in developing MSs, MSs introducing NPPs and MSs increasing their NPPs fleet.
- The status of the activities related to establishment of Regional Training Centres including high level education in waste management were presented, as well as the path forward.

The round table discussion on “Challenges and Issues faced by Developing MSs in the field of RWM and expectations regarding IAEA’s support” was organized as immediate follow up with panellists from Chile, Morocco, Philippines and Syria.

The following highlights come out from round table discussions:

- Timely development of human resources is needed;
- Need for MSs to have comprehensive policy and strategies;
- Need for regulatory framework to correspond with infrastructure development;

- Need for inventory of sources and materials;
- Need for public acceptance, specifically on all issues dealing with radioactive waste management
- Need for Regional Training Centres; and
- Need for an approach to deal with NORMs.

Conclusions, comments and recommendations

As a result of discussions following the presentations and the round table discussion, WATEC formulated the following recommendations to the IAEA:

- To support further development of an integrated package (see description in the “Background”) for guiding MSs with low volume of radioactive waste. WATEC encourages development of similar integrated packages to address the needs of all Member States;
- To support the on-going and planned predisposal/disposal program in developing technical guidance, especially in regard of integration of guidance on technology and safety;
- To support the consolidation of predisposal documents and development of comprehensive handbooks;
- To support further integration of regular budget activities with TC activities regarding implementation of guidance on technology and safety;
- To encourage newcomers to consider possibilities for joint activities and sharing of facilities;
- To support the continuous cooperation with Regional Training Centres.

Topical Session on “Managing disused sealed radioactive sources”

Background

For about a century we have been using natural isotopes in sources for beneficial uses and for over half a century we have been using man-made isotopes in sources. For the past twenty years the lack of life-cycle planning for sources has been well documented, and now we are fast approaching a decade where the world’s attention to the potential consequences of this oversight has been raised and efforts are underway to address this lack of control. It is safe to state that most of the sources ever produced remain in the environment today and have not been disposed of and there is a measure of safety and security risk continuously associated with all of those sources. It is hard to say just how many of these are disused. It is generally agreed that the Disused Sealed Radioactive Sources (DSRS) present a significant potential threat, because they exist as a burden to their custodians and not a benefit. This session highlighted some of the problems associated with DSRS and how the IAEA and Member States are addressing the needs for the better control of DSRS. There were four presentations given during the session including an overview of the problems and how the IAEA is addressing them, how a Member State (South Africa) has worked with the IAEA to solve a number of problems, how the IAEA is improving the regulatory infrastructure in Member States and also what is being done to recover sources and place them in safe and secure storage.

Conclusions, comments and recommendations

As a result of discussions following the presentations WATEC formulated the following conclusions and recommendations:

- The IAEA, and its partners, should be commended for the commitment to improving the safe and secure management of sources worldwide. The WATEC recommends that the source recovery and other related work be continued and preferably enhanced;
- Sustainable funding should be made available to ensure that the work of improving the control over DSRS is continued;
- The BOSS concept and the Mobile Hot Cell are now robust tools that can be used to strengthen the infrastructure for the management of DSRS. It is recommended that the two technologies be combined in order to dispose of sources;

- WATEC recommends further work on the BOSS concept for disposal of high activity sources and neutron sources;
- The generic work on the BOSS concept is mature for its implementation and WATEC recommends that suitable countries be identified and encouraged to implement the disposal of sources using the BOSS concept;
- WATEC supports the strategy proposed by WTS to identify countries to host BOSS pilot and demonstration projects;
- It is recognized that international cooperation in dealing with the transboundary movements of sources needs to be enhanced;
- WATEC also recognizes that there is a great need for international cooperation on the long term management and disposal of radioactive sources.

Topical Session on “RWM information systems”

Background

The session consisted on two presentations regarding information systems in Germany and IAEA. In Germany, Konrad mine, a database will be available. Generators are due to declare harmful substances together with radiological data. Every year, BfS consolidates and makes available to the public the actual national inventory.

IAEA NEWMDB gets contributions from Member States representing approximately 90% of NPP generation, although four important nuclear Member States are not yet reporting (Russia, South Africa, India, and China). NEWMDB is complemented within the Agency by several other databases on spent nuclear fuel storage and decommissioning (i.e., RRDB, NFCIS, DIRATA, PRIS).

WATEC takes into consideration improvements and upgrading in the NEWMDB that facilitate its usefulness as a reliable source of information. Nevertheless, it should not be used for deep inter-comparison of MS, as the translation of national waste classes to IAEA classes is an approximation.

MSs should also be aware of the new IAEA document **Classification of Radioactive Waste** to be published this year. The new classification scheme will not require important changes as to the data to be reported. There was discussion on the new classification scheme, on waste classification in general, and the possible impacts this may have on national reporting.

Consistency of reporting to the different international organizations is a problem. The Agency is searching for better cooperation with the EC and OECD-NEA in order for all of them to have a single, comprehensive system useful for their own MSs and to share between international organizations.

It was noted that adding nuclide data to NEWMDB and predictions of future quantities would be useful and that currently, NEWMDB is the most detailed database collecting information on radioactive waste at the international level. In the future, it is expected that the data reported by MSs could also be used in the preparation of the Joint Convention national reports.

Conclusions, comments and recommendations

Following the presentations WATEC’s discussion resulted in the following conclusions and recommendations to the IAEA:

- WATEC recognizes that good progress in updating and enhancing the system has been made over the past two years and that the NEWMDB is now more useful and user friendly. WATEC believes that the stepwise approach to advancing the system and integrating new features is the correct path, and encourages continued coordination with the other international organizations (EC and NEA) to move towards a single reporting channel.

- WATEC supports the connection and association of the Agency data bases for radioactive waste (NEWMDB) and spent nuclear fuel, under the umbrella of the Joint Convention.

Update on “International organisations activities in the field of radioactive waste management”

Background

This year updates on international organizations activities were provided by three organizations demonstrating continued cooperation between these organizations with radioactive waste management programmes:

- European Commission (EC),
- OECD Nuclear Energy Agency (NEA), and
- International Organization for Standardization (ISO).

ISO was visibly represented for the first time in the WATEC meeting highlighting the overall role of the ISO focussing on its Sub-Committee 5 for standards on Nuclear Fuel Cycle under the Technical Committee 85 (TC85/SC5). Particularly, the activities of Working Groups 5 and 13 on waste management and decommissioning were directly related to the WTS programme. EC highlighted its R&D activities relevant to WTS updating on Framework Programmes FP 6 and 7, and introducing the recently initiated initiative of Implementing Geological Disposal Technology Platform (IGD-TP). It was interesting to note that EC in opening its R&D cooperation with non-European Union countries, starting with Russia and China. The NEA updated on its developments in the areas of radioactive waste management and decommissioning, which are focussed mainly on the disposal of long-lived waste, addressing policy and regulation, long-term safety, stakeholder confidence and decommissioning. One important event within these areas is the forthcoming International Conference on Geological Repositories (ICGR’11) to be held in Tokyo in the fall 2011 and hosted by the Japanese Government. As in the case of past such conferences the IAEA is expected to cooperate in organizing this event.

Conclusions, comments and recommendations

As a result of discussions following the presentations, WATEC formulated the following conclusions and recommendations:

- WATEC recognizes and encourages WTS to further develop the cooperation between IAEA and International Organizations in the exchange and sharing of information and in co-ordination of activities. In particular it is encouraged to establish cooperation with ISO.
- WATEC encourages WTS to explore the possibilities of joint training with international organizations in the area of radioactive waste management.

Update on “IAEA networking activities”

Background

The WTS provided an extensive update on each of the following Networks within the section which are at different levels of maturity. All are aimed at providing hands-on training activities with case studies and demonstration projects to increase the effectiveness and efficiency of the Agency’s delivery of its services to Member States:

- URF Network (since 2001)
- IDN (since 2007)
- DISPONET (starting 2009)
- ENVIRONET (to start 2010)

- LABONET (to start 2010/11)

In response to a request from the last WATEC meeting, an assessment report highlighting the lessons learned from the work of the URF Network (the first established) was distributed to WATEC Members. It was emphasized that a number of lessons learned from the URF Network are applicable to other networks. For example, the engagement of experienced and qualified organizations willing to contribute to the networks, e.g. by sharing their knowledge and making facilities available, is crucial for having sustainable networks.

Conclusions, comments and recommendations

WATEC strongly supports WTS's network activities and recommends the following to enhance these activities:

- WATEC requests WTS to clarify the definition of "Centres of Excellence", and to use this in recognizing and encouraging the contributions of network members.
- WATEC recognizes the important training and demonstration functions provided by the existing networks: the URF network and the IDN, noting in particular that these provide a service that is not available through other avenues.
- WATEC encourages WTS to continue with the implementation of DISPONET, ENVIRONET and LABONET to increase efficiency in sharing international experience and application of proven practice in their subject areas
- There is a pressing need for *effective* financial support arrangements providing TC funds to enable the participation of MS in the networks.
- WATEC encourages WTS to further pursue its efforts to align network training events with the needs of the participating MS in terms of content and timing.
- WATEC notes that it is vital to have a sufficient number of contributors to the networks (not only participants). This should be carefully assessed when launching a network, and when evaluating the performance of the networks.

Update on "Contact Expert Group"

WATEC appreciated receiving information on the work of the Contact Expert Group, and commends the CEG on their progress.

Topical sessions at the WATEC 2010 meeting

WATEC suggests the following topical sessions be organized at the next meeting:

- Strategic directions for Programme & Budget (Programme L) for the period 2012-2013
- Confidence building in RWM
- Environmental remediation and management of NORM
- Legacy waste

WATEC also asks for an up-date of networking activities.

WATEC 2010 meeting

The next WATEC meeting has been tentatively scheduled from 16 to 19 March 2010 at the IAEA Headquarters in Vienna, Austria.