

WATEC 2010 REPORT

The International Radioactive Waste Technical Committee (WATEC) held its annual meeting at the International Atomic Energy Agency (IAEA) in Vienna between 16 and 19 March 2010. The IAEA staff made excellent preparations for the meeting, structured around topical sessions proposed at the 2009 WATEC meeting.

The meeting focused on the following topical sessions:

- Confidence building in radioactive waste management (RWM),
- Legacy waste, and
- Strategic directions for Programme and Budget (P&B) for the period 2012-2013.

This report also includes summaries of discussions on Issues and Trends in WATEC Member States, IAEA networking activities, update on the progress with the Joint Convention, NE series and presentations given by invited international organisations (EC, NEA, WNA and ISO).

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:

- The interest in new-build of nuclear power reactors continues to grow;
- Several member states are making progress in disposal of various types of waste;
- Clean-up activities in Russia are progressing, and the Contact Expert Group (CEG) continues to be important;
- Good progress is made with the various networks run by the WTS;
- Discussions are on-going for having a greater degree of thematic/topical approach in the TC-projects;
- There are, or will in the near term, be new staff at several positions at the IAEA

The Director also reminded that this is the last meeting with the current members of WATEC, and it is expected to replace up to half of the members, which is normal practice. The terms of reference for WATEC will be reviewed and revised if needed.

The Head of the Waste Technology 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 most of the recommendations have been considered by the IAEA and implemented by WTS. In addition the Head of WTS presented an overview of the IAEA radioactive waste management programme for the current budget cycle (2010-2011).

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.

Some common issues for the three groups were:

1. NORM management
2. Confidence building
3. Improving technical and regulatory infrastructure

A summary of key issues and trends reported include:

- Many major programme countries (Group 1) have made progress in either adopting new laws and regulations relating to improved safety, security, and transparency, while many of the smaller programme countries (Groups 2 and 3) have made progress in establishing national policies and strategies for RWM.
- LLW Repository siting has progressed significantly, and notable in Sweden is the SNF/HLW siting with the designation of the Forsmark site. Also noteworthy is the withdrawal of the Yucca Mtn site in the USA for HLW/SNF disposal.
- Conditioning of sealed highly active radiation sources (SHARS) is being investigated in some countries and use of the bore-hole disposal concept (BOSS) is also being proposed and planned for, in addition to combined use of the Mobile Hot Cell technology, in some cases.
- Many countries are actively pursuing disused sealed radioactive sources (DSRS) repatriation for their SHARS, with IAEA support and GTRI funding.
- It is a challenge to deal with high volume, low activity waste streams and managing large quantities of depleted uranium from enrichment and uranium mill tailings. In many countries the challenge is managing NORM wastes from a regulatory, technical as well as economic perspective. There is some concern that regulatory action may lead to all NORM being classified as radioactive waste without appreciation for cost implications or actual risk to the public and environment.
- In general, countries from all Groups expressed difficulties in communication with the public on RWM issues.
- However, several countries are actively engaging the public through e.g. seminars and stakeholder forums with the aim to create public awareness and confidence on sustainable radioactive waste management.
- The Group 1 countries, in addition to most of the Groups 2 and 3, have problems due to lack of defined waste acceptance criteria (WAC) for final disposition of certain waste types.
- Prioritization of decommissioning projects is an issue now that there is a large number of nuclear power plants and other facilities approaching or having reached their license and design life limits.
- Group 2 countries expressed difficulties in funding decommissioning and also in the lack of adequate disposal facilities for wastes from decommissioning and dismantling. Assistance is also needed for certain countries that must now decommission facilities where irradiated fuel was dismantled and analysed due to the special problems of transuranic elements.
- Legacy waste management and characterization is an issue for many countries, including HLW from past reprocessing operations.

WATEC's discussion on the use and format of the questionnaires determined that these are a good tool and a good exercise to summarise the results and to present them for purpose of comparison. It might be helpful to include a list of existing documents and existing and recent conferences/workshops. The Rapporteurs found the questionnaires a helpful tool for preparing presentations and summaries of the discussions.

Conclusions, comments and recommendations

WATEC supports the current form and size of the questionnaire. Topical session questions should be retained. It should be modified to draw out RWM issues for newcomers to nuclear power, and thus there needs to be a section addressing the needs of "Newcomers". The WATEC chair recommends discussing this prior to preparing the next meeting, when the composition of the committee is known, and the terms of reference have been revised.

WATEC noted that continued IAEA support is advisable through training, Technical Cooperation, workshops, etc. IAEA support in establishing policy and strategy for RWM, alternatives for SHARS management, decommissioning activities, and disposal options for LILW is encouraged.

Topical Session on “Confidence building in RWM”

Background

An important benefit of the IAEA’s work with the Member States in the field of radioactive waste management is the increase in stakeholder confidence these efforts have brought. In particular, activities such as peer reviews, and other visible evidence of the IAEA’s engagement with Member States on waste management issues make an important contribution to public confidence. In this vein, it is important to also acknowledge that the Joint Convention and the Safety Standards are considered to provide an element of confidence building in as much as the Convention involves an international peer review mechanism and the Standards provide a consensual basis for safety. The Joint Convention and the Safety Standards have numerous instances of actions to be taken to increase confidence in the safety of nuclear facilities. In 2009-2010, the activities of WTS in this area have increased due to additional funding from Japan for EPPUNE programme (Expanded Programme of Public Understanding on Nuclear Energy) of network activities aimed at providing knowledge and training on the fundamentals of stakeholder communications and the development of communications plans.

Conclusions, comments and recommendations

WATEC recognises that stakeholder acceptance of any radioactive waste management project, including the siting of a repository, hinges on societal and public confidence and not merely on technological competence. WATEC also recognises and acknowledges that stakeholder confidence-building strategies and policies are regionally specific and must take into account cultural settings of Member States.

As a result of discussions following the presentations from WTS, NEA and WATEC representatives from South Africa, Spain and Sweden WATEC formulated the following conclusions and recommendations to the IAEA:

- WATEC takes note of the contribution made by the ongoing technical work and network activities of the WTS and its co-operation with the Waste and Environmental Safety Section (WES) in gaining and maintaining stakeholder confidence.
- WATEC endorses the strategy of support to Member States organisations engaged in confidence-building dialogue with their stakeholders. WATEC commends the efforts made in this respect through EPPUNE and recommends the continued focus on providing experts in the Member States with a better understanding of the processes and practices available to achieve effective stakeholder communications.
- WATEC considers peer reviews as an important component in confidence building and thus supports development of formats for peer review services.
- WATEC recommends and supports coordination between the IAEA and NEA in the approach to peer reviews.
- WATEC supports the WTS initiative to develop innovative communication platforms such as CONNECT (Network-of-Networks) that will enhance and complement confidence building strategies.
- WATEC suggests that the collection of relevant audio-visual materials from Member States to convey the positive impressions achievable from application of “best practice” be undertaken, and a means to make such material available on-line be pursued.

Topical Session on “Legacy waste”

Background

The Session Rapporteur provided an introduction to the session by presenting goals and objectives and summary of Member States’ feedback on the legacy waste issues in their respective countries.

The goals of the session were to:

- Define what is considered Legacy and to estimate/quantify a problem.

- Identify major issues in managing legacy wastes in the Member States represented in WATEC.
- Get an overview of completed, on-going and planned WTS activities dealing with legacy waste issues.
- Provide examples from distinct Member States on dealing with legacy from different sources to better understand what is expected from IAEA.
- Discuss and identify opportunities of improvement in WTS work-program to support Member States in addressing legacy waste issues.

From the responses from WATEC Member States it can be concluded that the common denominators for legacy waste are:

- Unlike “operational or decommissioning” radioactive waste, management of historical/legacy waste involves many additional issues or unique properties.
- Legacy waste is, to a varying degree, an issue in most Member States.

This presentation was followed by a presentation by WTS with an overview of completed, on-going and planned WTS activities to assist Member States dealing with legacy waste issues. The presentation was organised to reflect support of WTS to Member States by the following means:

1. Providing topical technical reports to address legacy waste issues.
2. Organising forums/networks for experience exchange.
3. Organising assistance to Member States to implement waste retrieval/characterizations/repackaging through TC, CEG or directly.
4. Organising peer reviews for intended actions.
5. Establish a data base for equipment exchange.

The specific examples of experience in Member States in dealing with legacy waste were provided by the presentations on the situation in the Russian Federation, the USA, Canada, India and Slovakia.

Conclusions, comments and recommendations

Support of IAEA to MS through training, workshops, Coordinated Research Projects (CRP), TC projects and publications is advisable in addressing the specific issue of legacy wastes. The completed, on-going and planned WTS activities to assist Member States dealing with legacy waste issues were found to adequately cover relevant issues in this area. This wealth of information should be better documented and published to provide solutions, lessons learned and prevent occurrence of mistakes.

The following opportunities for improvement were recommended for consideration by WTS:

- To ensure that WTS documentation developed as technical support to legacy waste issues is more easily accessible from IAEA publications and organised to address specific areas.
- To provide forums for experience exchange.
- To elaborate possible formats for peer reviews on legacy waste, remedial actions, processing schemes or plans.
- To ensure that legacy waste issues are adequately considered by the different networks as well as within on-going work on waste acceptance criteria that should include HLW.
- To provide more support on ways how to reconstitute waste data (records) and to collect relevant information to deal with historical waste.
- To investigate means to establish a data base of equipment available in different Member States from the implemented corrective actions dealing with legacy issues and service providers of such equipment that can be shared between Member States.
- To support addressing legacy issues of HLW, SNF and LILW with considerable amounts of long-lived components.

Update on “IAEA networking activities”

Background

The IAEA networks have undergone rapid expansion and gained widespread acceptance in Member States. They offer an efficient and effective way to share information and engage participants in helping each other. As the networks have evolved, they have also diversified in their approaches to match the expectations and needs of Member States. With expansion of the networks, their activities become more interesting and useful as a “critical mass” of participants with interests in specific topical areas evolves. This increasing number of participants demands more efficient, direct interactions between groups with similar interests/needs and IAEA staff. Web-based tools to facilitate these communications and improve direct access to training information are being pursued.

Conclusions, comments and recommendations

WATEC observes that the “pressing need for effective financial support” for the networks noted in the 2009 WATEC Report remains a concern, particularly for the emerging networks. This funding is needed especially for ENVIRONET, DISPONET and LABONET. IAEA Regional and Inter-regional Projects are appropriate vehicles to grow and consolidate these Networks.

- WATEC recommends that the discussions necessary to engage TC in this support of the networks proceed on a priority basis. WATEC requests that an update be provided at WATEC 2011 on progress in obtaining TC support in the form of Regional and Inter-regional projects

WATEC recognises the importance of the role played by the networks in meeting the waste management, decommissioning, and environmental remediation needs of Member States and supports expanded use of networks and networking. To meet the increased demands on technical staff imposed by this expansion in the environment of constrained budgets and staff resources, effective use of advanced web-based tools should be explored.

- WATEC encourages the continued development of web-based tools such as CONNECT relevant to the operation of the networks and requests a report on progress made in this regard at WATEC 2011

While improving the effectiveness and efficiency of support for training and expert assistance via TC projects is a key deliverable, the networks need to continue to grow their broad base of support in the Member States. To facilitate this:

- WATEC encourages WTS to explore the engagement of a broad range of potential sponsors and partners consistent with the goals of each network
- WATEC encourages WTS to develop measurable milestones (in addition to straightforward criteria such as the number of participants, meetings etc.) to demonstrate the progress made by the networks

NE-Series

Background

The structure of the NE-Series was presented to WATEC together with an overview of the being done to assess the “completeness” of the publications, with the aim to identify gaps, redundant publications and to the extent possible reduce the number.

The presentation also contained an overview of the mechanisms in place for the preparation, review and approval of publications, which for example include a Document Coordination Team, engagement of external experts, technical working groups (depending on the subject and level of the publication) and a Publication Committee.

The possibility to use WATEC for reviewing certain documents, particularly higher level documents, was also addressed. Primarily members of WATEC may be invited to provide individual review comments but if these are very divergent on central matters, these may be brought to WATEC for resolutions.

Conclusions, comments and recommendations

The new structure of the NE-Series has been welcomed by WATEC and the committee emphasised the importance of further facilitating the searching for a particular document by arranging the documents according to the theme and further developing the Clickable Map on the IAEA web site.

WTS should be commended for reviewing the large inventory of prior documents and purging outdated documents.

WATEC also recognised the importance of having mechanisms for periodic updating and revisions of the published technical reports to keep pace with technology development and to include lessons learned.

WATEC expressed some concern about becoming a body for reviewing documents, but would appreciate to get access to the draft documents during the review process. WATEC recommends that IAEA carefully considers WATEC's role in the review process when appointing the new WATEC and revising the terms of reference.

WATEC wishes that WTS reports on the progress made on the structure and planning of new documents within the NE Series at next year's meeting.

Update on “Joint Convention”

At the meeting in 2009 WATEC was given a comprehensive presentation of the work related to the Joint Convention. Since then the third review meeting has taken place and WATEC was given an up-date on some of the conclusions, primarily related to procedures and administrative routines.

For future reports on the Joint Convention WATEC expressed its desire to hear more on the lessons learned from the Review Meetings taking into account the constraints due to the confidentiality clauses of the Joint Convention (article 36). WATEC notes that efforts are being made to have activities on-going between the Review Meetings, such as the Technical Meeting on the Establishment of a Radioactive Waste Management Organisation, which will be held in Paris in June.

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

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

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

ISO's report focused 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 7, and reported that the Implementing Geological Disposal Technology Platform (IGD-TP) is now established.

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.

Finally, WNA gave a brief up-date and mentioned in particular the importance of being able to recycle slightly contaminated metals, in particular from decommissioning activities, with adequate controls and with reasonable clearance levels.

Topical Session on “Strategic directions for P&B for the period 2012 - 2013”

Background

During the year 2010 planning for the next Programme & Budget cycle starts, therefore the discussion of future strategic orientations of the section was included in the WATEC meeting to get the reflections and recommendations by WATEC.

Two presentations were delivered by the IAEA staff as the introduction to further discussion. The first presentation provided WATEC with information on the IAEA Vision 2020 and Mid-term Strategy with main strategic issues and challenges for the next period. The second presentation concerned the current plans for activities to be carried out primarily by the WTS (including co-operation with e.g. the WES).

The following topics were specifically addressed: assistance to newcomers, building on networks and creating the Network-of-Networks, better planning and structuring of technical documents and publications, review services, improving practices by benchmarking and inter-comparison studies and support to capacity building. The critical issue of significant number of professional staff on a temporary basis and extra-budgetary funding was also mentioned.

Conclusions, comments and recommendations

In addition to the recommendations given during the previous Topical Sessions WATEC also have the following recommendations and comments:

- The proposed further work to assist the newcomers was supported with a remark that consideration of regional/multinational approaches should be presented in a way not to create new concerns or misunderstandings, e.g. regarding shared repositories.
- WATEC recommends WTS to pay due attention to different aspects of ILW handling and disposal, including possibilities for minimisation of waste generated by decommissioning activities.
- Life-cycle environmental management is supported, since it aims at preventing situations requiring environmental remediation from arising.
- WATEC supported further IAEA work for capacity building in Member States, which may also contribute to building confidence in radioactive waste management. The syllabus that is being developed by the WTS and WES could be useful also for national training centres and further development in this direction is recommended.
- On the proposed inter-comparison studies WATEC expressed concern that it may provoke unreasonable and unjustified ranking of different approaches to e.g. the disposal of VLLW. However, it was agreed that learning from different practices, for example when dealing with materials with small amounts of radioactivity, might be useful and could promote further harmonisation of good practices. The activity was supported with a remark that better wording is necessary to avoid any misinterpretation. WTS should explore to which extent the existing networks can address these issues.
- WATEC recognised again the difficult situation of the source management team, which is mainly composed of staff on temporary basis. WATEC recommends IAEA to increase the sustainability of the source management team and the source management itself. The strategy for

sustainable source management by the individual Member States including the borehole disposal concept is in the right direction and should be strongly promoted.

Topical sessions at the WATEC 2011 meeting

WATEC suggests that some of the following topical sessions be organised at the next meeting:

- Environmental management and remediation and management of NORM
- Waste classification and link to the NEWMDB (reporting on waste inventory)
- Addressing time spans and size of disposal systems from limited sampling and characterisation
- Development of infrastructure for newcomers
- Long term management of ILW

WATEC considers that not more than three topical sessions should be planned for the meeting.

WATEC 2011 meeting

The next WATEC meeting has been tentatively scheduled from 29 March to 1 April 2011.

In addition to the topical sessions WATEC wishes that the following is addressed:

- Update on international organisations
- Update on P&B 2012-2013 and the new TC-cycle
- Presentation on the Implementing Geological Disposal Technology Platform (IGD-TP) and interfaces with IAEA's activities
- Update on networks, CONNECT and communication tools
- Progress on the documents and NE Series

WATEC expressed support for continued engagement of committee members in evaluating the responses to the questionnaire and in giving presentations in the topical sessions.

As stated above WATEC considers the questionnaires most useful and would welcome guidelines for summarising the responses. Furthermore, WATEC supports that templates be provided for presentations for the topical sessions, since this would make comparisons between e.g. Member States easier.