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Fuel Cycle and Waste Newsletter

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Contents

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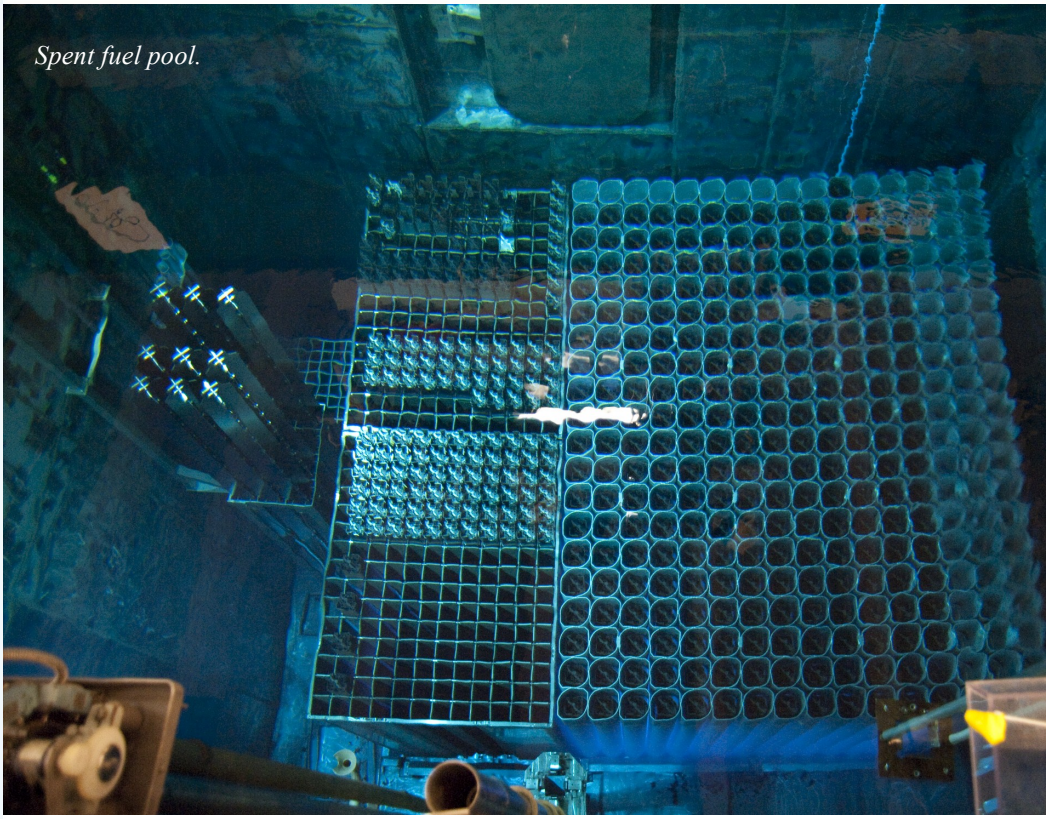

Spent fuel pool.

Strengthening Safe Storage of Spent Fuel

Until last year's events in Japan, storing spent nuclear fuel that had not been seen as a major challenge. It had not been overlooked, but the routine nature of managing this fuel after its removal from the reactor core had reassured us that all safety aspects were sufficiently addressed.

The Fukushima Daiichi accident, however warned us against such complacency. It is an inherent responsibility to continue to explore, examine and assess the significance of nuclear safety vulnerabilities – including the storage of spent fuel.

As a part of implementing the IAEA's Action Plan on Nuclear Safety, the IAEA held an International Experts' Meeting on *Reactor and Spent Fuel Safety in the Light of the Accident at the Fukushima Daiichi Nuclear Power Plant* in late March of this year.

"In the session on spent fuel, over 60 experts sought to analyse the relevant technical aspects as well as the consequences of incidents at wet and dry spent fuel storage facilities," says Mr **Arturo Bevilacqua** of the IAEA Nuclear Fuel Cycle and Materials Section.

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Taking Care of Business

Over the past year, a major focus of the business of the Division of Nuclear Fuel Cycle and Waste Technology has been on Fukushima-related activities. We began with the IAEA's first response by participating in and leading missions to Japan. The IAEA Nuclear Safety Action Plan gave new focus to our activities by defining a programme of work to strengthen the global nuclear safety framework. You can read about many of our activities in previous Newsletters.

The Nuclear Safety Action Plan included a pledge to organize International Experts' Meetings to analyse all relevant technical aspects and learn the lessons from the accident. Our division worked with the Division of Nuclear Power and the Department of Nuclear Safety to deliver the first of these meetings. Our hard work resulted in a very successful event as you can see from the feature story 'Strengthening Safe Storage of Spent Fuel' in this edition of the NEFW Newsletter.

The Nuclear Safety Action Plan also calls for the IAEA to strengthen its peer reviews in order to maximize the benefits to Member States. We made it our business take immediate action, delivering our first mission to review plans for a spent fuel dry storage facility. You can read about this mission on page 4.

Even in the face of all of this new activity, we haven't lost sight of our core business — delivering value to our Member States in all areas of nuclear fuel cycle and waste technology. A number of exciting activities represented also in this edition of the NEFW Newsletter deliver value to our Member States.

Looking forward, we still have a lot of work to do. There are serious lessons to be learned form the Fukushima accident and we are making it our business to ensure that these lessons are captured, learned and the knowledge is shared with the Member States. We will also continue to deliver value in all areas of the nuclear fuel cycle, cradle to grave. And, we look forward to welcoming the man who will be responsible for delivering all of that value, the next director for the of Nuclear Fuel Cycle and Waste Technology, Mr Juan Carlos Lentijo.

Gary Dyck, Acting Director (G.Dyck@iaea.org)

At the Japanese Ministry of Environment, Environment Minister Goshi Hosono receives a copy of the IAEA international experts' report on the Japanese authorities' remediation strategies. The report was presented by Juan Carlos Lentijo, Mission Team Leader and Deputy Mission Team Leader Tero Varjoranta, Tokyo, 14 October.

Leadership of the Division of the Nuclear Fuel Cycle and Waste Technology Is Now in the Hands of Lentijo

As of mid-June 2012, Mr **Juan Carlos Lentijo** has joined the IAEA as the Director of the Division of Nuclear Fuel Cycle and Waste Technology. He has 30 years of experience in the field of nuclear energy and in radiation protection. Before his appointment to Vienna, Mr Lentijo worked as the General Director for Radiation Protection at Spain's nuclear regulatory authority.

The new Director already has a good relationship and working contacts with the IAEA as well as with the Division. In addition to several meetings he has attended over the years, Mr Lentijo was also the Mission Team Leader of the International Expert Mission on Remediation that the IAEA organized to Japan last year.

Mr Lentijo is succeeding Mr Tero Varjoranta who returned to his home country, Finland, earlier this year. The next volume of NEFW Newsletter (to be published in September) will provide Mr Juan Carlos Lentijo's insights of the future activities of the Division.

Vulnerabilities of spent fuel pools

In his summary, Mr **Shridhar Chande**, the Co-chair of the session on spent fuel, stated that looking back at the events at Fukushima Daiichi NPP, "*design and circumstances of the spent fuel pools, combined with the actions undertaken by the Japanese, prevented any significant release of radioactivity from the spent fuel. The centralized storage facilities, both wet and dry, also performed well*."

However, there were significant concerns regarding possible accident scenarios involving stored spent fuel, such as loss of pool water, re-criticality, hydrogen production, zirconium fires, severe damage to the fuel and large release of radioactivity. The summary pointed out that even though none of these actually happened, they need to be addressed if the public is to be assured of the safety of nuclear energy.

"From the aftermath, the main concern today relates to the growing inventory of spent fuel stored in pools along side of light-water reactors at higher density and for longer periods of time than originally intended," says Mr Bevilacqua.

Not only has the amount of spent fuel increased due the use of high density storage racks, but the heat generated by the fuel has increased due to the higher exit burn up typical of modern reactor fuel cycles.

"These factors have increased the vulnerability of such light water reactor spent fuel pools, making it essential to carefully examine the safety of existing spent fuel pools," Mr Bevilacqua concludes.

"...actions undertaken by the Japanese, prevented any significant release of radioactivity from the spent fuel. The centralized storage facilities, both wet and dry, also performed well."

From lessons to practical recommendations

The four-day expert meeting formulated several recommendations also for Member States to consider.

It was endorsed, for example, to reassess the adequacy of fuel pools in the event of severe conditions, such as total station blackout and loss of cooling, loss of instrumentation, and accidents with adjoining reactors.

If the spent fuel pool is in the reactor building, severe accident of the reactor core adversely impacts the storage conditions of spent fuel. In the picture, the spent fuel pool at Unit 3 of the Fukushima Daiichi NPP open to the air after the hydrogen explosion on March 14, 2011. Photo courtesy of TEPCO.

"Furthermore, reinforcing cooling systems by providing enhanced redundancy and diversity in equipment and power supply as well as making alternate provisions for adding water could improve the response of spent fuel storage pools to such severe conditions," explains Mr Bevilacqua. As suggested at the meeting, the IAEA will consider developing guidance in these areas.

It was also recommended that lessons derived from the meeting should be considered in the implementation of the IAEA Action Plan on Nuclear Safety.

Arturo Bevilacqua (a.bevilacqua@iaea.org)
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The undamaged spent fuel common pool building at the Fukushima Daiichi Nuclear Power Plant locates less than 100 m away the destroyed Unit 4. Photo courtesy of TEPCO.

The Irradiated Fuel Management Advisory Program helped Argentina to go forward with their plans to construct a spent fuel dry storage facility.

Review Services at Your Service

The Division of Nuclear Fuel Cycle and Waste Technologies offers a wide range of services which have benefited several Member States throughout the years. The benefits of impartial assessments on technological concepts can be performed, for example, through peer review missions requested by a Member State.

The Nuclear Fuel Cycle and Waste Technology division has long offered a wide range of peer reviews to Member States. These review services span the fuel cycle, from uranium production to spent fuel and waste management. The services can, among others, be offered in the framework of the Irradiated Fuel Management Advisory Programme, IFMAP, under which a mission to Argentina was recently completed.

Supporting spent fuel dry storage project in Argentina

To manage the spent fuel from their Atucha I nuclear power plant, Argentina is going forward with plans to construct a spent fuel dry storage facility.

Following up on a request from Nucleoeléctrica Argentina S.A. (NA-SA), NEFW organized a peer review mission of the Spent Fuel Dry Storage Project at Atucha I. Two IAEA officers and three external experts from Canada, Hungary and Spain jointly met with representatives of NA-SA and the Comisión Nacional de Energía Atómica 12–16 March 2012.

“Our mission discussed these plans and provided advice based on the best available technology and operational practices,” says Mr **Arturo Bevilacqua** of the IAEA Nuclear Fuel Cycle and Materials Section.

“The discussions covered both technical as well as organizational aspects of the spent fuel dry storage. For example, the advice on drying the spent fuel assemblies before placing it into the storage facility was found helpful,” Mr Bevilacqua states.

How to take part in review services?

The Argentina mission is a good example of the peer review process. Request for a peer review originates in an official letter to the Division Director. In the letter the institution representative briefly describes the needs and the kind of advice they are looking for. After the official request, technical staff of the Division define the next steps together with the contact point of the Member State.

Besides IFMAP, the are, for example, WATRP for radioactive waste related review services and OMARR, the Operation and Maintenance Assessment for Research Reactors service, which helps research reactor operating organisations improve facility availability and reliability through shared experiences and lessons learned. OMARR has been developed based on feedback received from the Technical Working Group on Research Reactors and it will complete its first review mission during 2012. The 20 MW(th) research reactor operated by the National Institute of Standards and Testing in the USA requested the first OMARR mission.

In response to the IAEA Nuclear Safety Action Plan, the Division will be expanding its delivery of peer review services over the coming months.

Hanna Kajander (h.kajander@iaea.org)

"To better support its Member States, the IAEA is now surveying Member States on their decommissioning and remediation efforts."

Tackling Barriers Impeding Decommissioning and Environmental Remediation

Many technologically advanced countries are moving forward with dealing with legacies and have built up appropriate technical resources and expertise. But there are also situations where the implementation process has stalled — decommissioning former nuclear installations and remediating contaminated sites are still challenges for many IAEA Member States.

"Besides the dismantling and decontamination work, long term solutions often remain to be found for managing the resulting waste, not to forget the development of disposal facilities that also meet public acceptance requirements. We are currently working on capturing and disseminating good practices and associated experiences from Member States that are facing these issues," state Mr **Patrick O'Sullivan** and Mr **Horst Monken-Fernandes**, the IAEA technical officers of the International Decommissioning Network (IDN) and Environet networks respectively.

Barriers impeding implementation of decommissioning and environmental remediation projects were discussed last year at a Side Event to the 55th General Conference of the IAEA.

"Amongst the conclusions from the event was a proposal to establish mechanisms to study current good practices in a systematic way, possibly through the formation of a dedicated Working Group tasked to analyse and report on these issues," O'Sullivan tells.

"The IAEA was also encouraged to continue its activities aimed at enhancing knowledge transfer between programmes, e.g. by means of the IDN and Environet."

Steps forward

In January 2012, the IAEA organized a meeting of consultants to advise on implementing the conclusions from the Side Event.

"The consultants proposed a 'roadmap' of future steps including surveying IAEA Member States on decommissioning and remediation and organizing a Technical Meeting (TM) on the subject. Following the TM the IAEA will establish an expert working group to review the outcomes of the survey and the TM. From this, the IAEA will be able to provide advice to its Member States on specific actions and projects," says O'Sullivan.

The proposed survey will be launched in July 2012, and the progress will be discussed at a Side Event to the 56th General Conference of the IAEA, 17–21 September.

Survey serves as basis for a TM in early 2013

The evaluation of the survey results will provide a basis for the TM, planned for early 2013.

"The TM will give a firm understanding of the global situation on decommissioning and environmental remediation projects as well as constraints faced in their implementation," Monken-Fernandes tells.

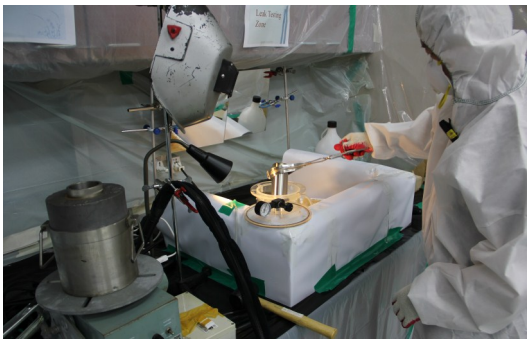
All of this will generate increased international cooperation and through leveraging of resources already being applied in diverse and uncoordinated ways.

"It should be emphasised that this effort is intended to supplement other initiatives already in place within the IAEA such as the Regulatory Forum for Legacy Sites," reminds Horst Monken-Fernandes.

"These efforts will also support the implementation of the IAEA's Nuclear Safety Action Plan, for example by providing insights on mechanisms that facilitate decommissioning and environmental remediation activities in the aftermath of major nuclear and radiological accidents," Patrick O'Sullivan concludes.

Hanna Kajander (h.kajander@iaea.org)





Several IAEA Member States have disused radioactive lightning conductors in their waste inventory and the IAEA has received requests from Member States for assistance on managing such disused devices.

Getting Radioactive Lightning Conductors under Control

Sometimes experiments lead to top inventions and discoveries. Imagine if Newton had not dropped the apple! Sometimes, however, new ideas turn out not to be as effective as originally thought. Radioactive light conductors (RLCs) belong to this latter category.

It is estimated that approximately 500 000 RLCs have been installed worldwide. The use of RLCs in many countries began before the development of specific legislation to control the ownership and use of radioactive materials. Many countries around the world were not concerned about the installation of RLCs and did not keep records on where they were installed. For different reasons, many RLCs were displaced or damaged.

Over the last 15 years, most countries have officially recognized the need to stop installing radioactive lightning rods and to remove the existing units from the public domain. Several countries have enacted legislation to this affect. However, the problems associated with locating, removing, transporting and dismantling large numbers of RLCs and conditioning the sources continues to make their safe management difficult.

Helping Hand from the IAEA

The Source Management Team in NEFW's Waste Technology Section is undertaking a number of activities to assist Member States in safely managing these problematic materials:

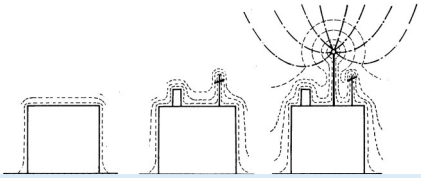
(1) Collecting and collating information from countries that have experience and good practices in the management of disused RLCs'.

(2) Drafting a comprehensive Technical Manual that addresses the key components of the procedures and actions to be taken to handle and dismantle RLCs, as well remove and condition the radioactive sources safely and with adequate quality management.

(3) Compiling a database of different models of existing radioactive lightning conductors. Details on the models and trademarks, manufacturers, distributors, distribution periods, pictures, type of radioactive sources, radionuclides, activities, as well as descriptions on how the sources are fixed on the devices will be included in the Radioactive Lightning Conductors Database. The current version of the database contains 40 models of RLCs. The database will be available to Member States as part of the International Catalogue of Sealed Radioactive Sources and Devices (ICSRS) .

In addition, the IAEA is providing hands-on assistance to Member States requesting help in dismantling disused RLCs and handling and conditioning the associated disused radioactive sealed sources.

Juan Carlos Benitez-Navarro (j.c.benitez-navarro@iaea.org)



Fact Box

A *lightning rod* (USA, AUS) or *lightning conductor* (UK) is a metal rod or conductor mounted on top of a building and electrically connected to the ground through a wire, to protect the building in the event of a lightning strike. If lightning strikes the building, it will preferentially strike the rod, and be conducted harmlessly to ground through the wire, instead of passing through the building, where it could start a fire, damage electrical equipment, or cause electrocution.

In the past, some manufacturers have attached radioactive sources to the ends of lightning conductors/rods as a means of increasing their range of attraction by ionisation of the surrounding air. These are known as *Radioactive Lightning Conductors* (RLCs).

The radionuclides initially used were Radium-226 or Americium-241. In later years, and in particular in a few countries, larger quantities of gamma-emitting radionuclides were used for this purpose: typically Europium-152/154 or Cobalt-60. The effectiveness of these RLC devices was never actually proven.

International Centres of Excellence Based on Research Reactors (ICERR):

Ensuring Stable Stepping Stones for Newcomers

To help Member States create and sustain their nuclear competencies, the IAEA has launched an initiative to create International Centres of Excellence based on Research Reactors (ICERR). The project strives to recognize and utilize research reactor facilities that have fostered and sustained excellence in their respective scientific programme areas.

There is no standard format for an ICERR; there are many viable options and it is expected that the structure will be tailored to meet the specific needs of each ICERR and its affiliates. However, common to all is a high performance research reactor employing best practices in nuclear safety, and with a range of ancillary hot cells and laboratories (e.g. for fuel and material investigations), services (e.g. fuel management, waste treatment), a broad spectrum of scientific and technical skills, and links to the nuclear energy industry.

"The ICERR initiative will, for example, make possible subscriptions to facilities that can provide platforms for research, training and best practices for nuclear operations."

This facility would then be at the heart of network drawing together the expertise, capabilities and facilities of the ICERR with those of the users and contributors from other countries. It is envisaged that ICERR's affiliates would purchase access to its operational capabilities through a subscription with predefined terms. This subscription would include an option to send staff to work at the ICERR and learn first-hand how nuclear facilities are organized, operated and regulated.

Kick-off meeting for launching the initiative

To kick-off the ICERR initiative, 27 experts met at the CEA's Cadarache Research Centre in France 10–12 April, 2012. The participants agreed that an International Centre of Excellence based on Research Reactors should provide access to the research reactor

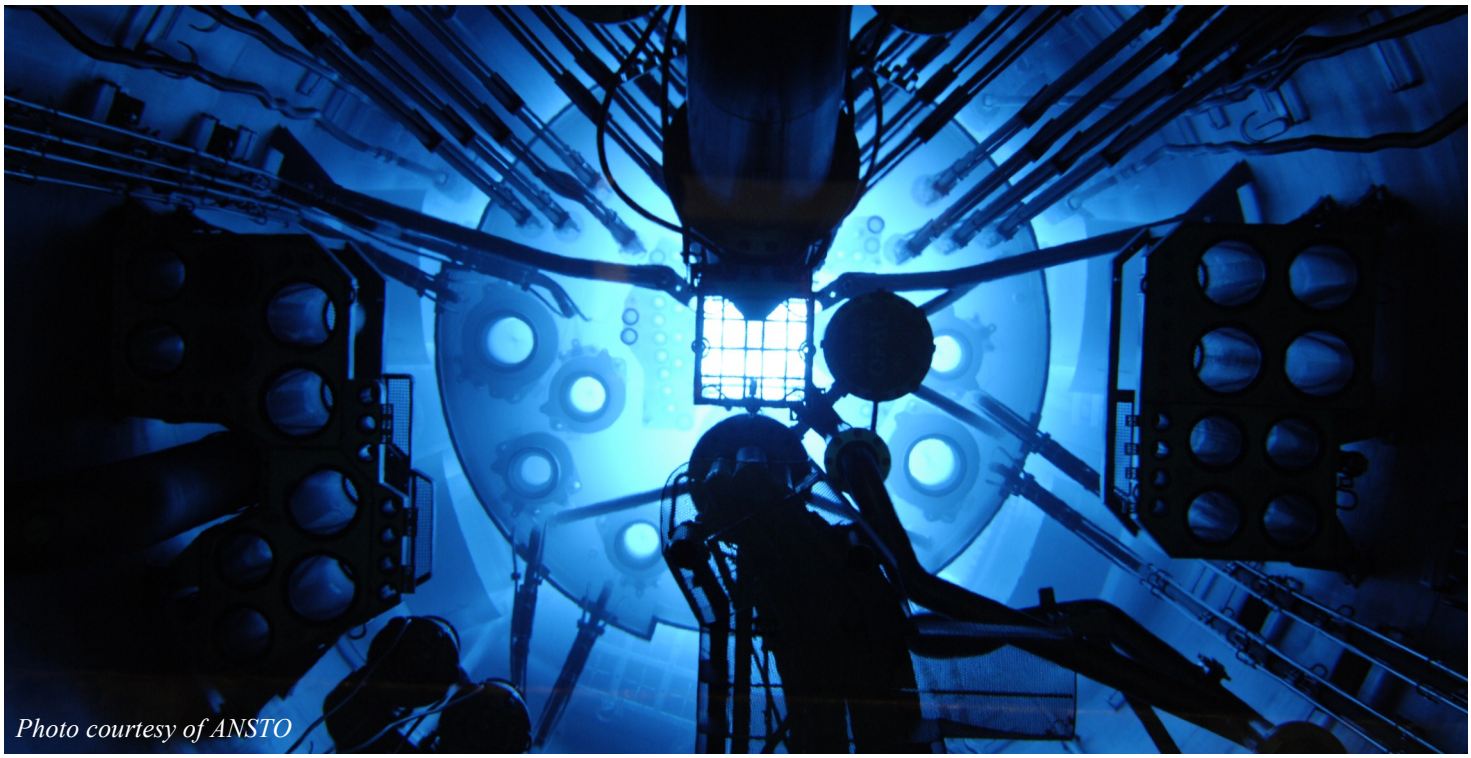


Photo courtesy of ANSTO

Launching CONNECT, the Network of Networks

Over the years, the IAEA has set up a number of networks to encourage experts to contribute and share their knowledge and resources. To further facilitate and expand the reach of these communities of practice, the IAEA, with initial help from Sandia National Laboratories, has been developing a new web platform that inter-connects these networks and their participating organizations and experts. Known by the acronym CONNECT, for Connecting the Network of Networks for Enhanced Communications and Training, this platform uses new media and web technologies to enable increased participation from individuals and organizations involved.

The goal of CONNECT is to develop a vibrant and useful web-based forum and collaboration space including the concurrent development of a series of training curricula in radioactive waste management. The project is being implemented in two parts: an Interregional TC project combined with a related project supported by the European Commission (EC).

The EC project has emphasis on development of the platform's eLearning Management System and initial learning content, and was formally initiated in January 2012. By October, the platform should be fully functional and equipped with enough high-quality learning and other content to be interesting for a wide group of users.

The Interregional TC project started with a Workshop on the Content and Timing for Rollout of CONNECT. The event was held 19–23 March at the IAEA in Vienna and 15 participants from 15 Member States attended the event. The outcome was an optimized Implementation Plan and the creation of a volunteer core user group who will assist the IAEA to promote CONNECT in all of the regions and further the development of the platform.

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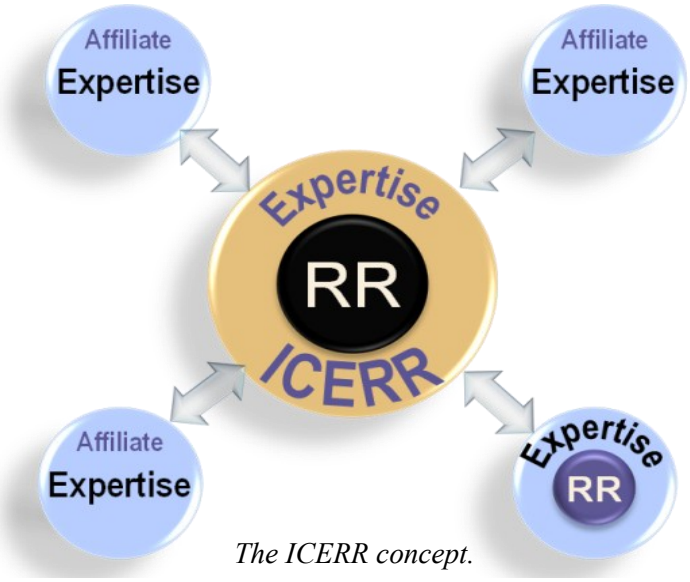
For more information on CONNECT, visit www.iaea.org/NE/WasteTechnology/CONNECT.



The ICERR concept.

Continues from p. 7

and its associated facilities. Access to these facilities should include insights into the operational, managerial and safety implications of building, operating and life cycle management of such facility.

Meeting participants put forward a number of ideas for establishing ICERRs. One idea centred on the ICERR serving as an international collaborative platform for secondees from states requiring development of human resources in nuclear fields. This would allow secondees to work with, and learn from, international leaders in nuclear scientific and engineering fields at the research reactor facility, and boost their home state's human resources upon their return.

Another idea focused on using an ICERR to develop and host training on Best Practices in Strategic and Business Development for research reactors, with a focus on increased utilization of research reactors. The outcome would be that states building new research reactors would learn — while their reactors are still under construction — how best to find stakeholders to utilize the reactor.

One participant suggested providing formal nuclear academic education and initial hands-on training on nuclear projects, including a final thesis or professional work to be carried on actual on-going relevant nuclear projects. This would afford students the opportunity to work in and around a research reactor to complete their education, when they might not normally have access to a reactor facility otherwise.

The NEFW's Research Reactor Section is working to develop the ICERR concept, including criteria for reactors that might wish to become an ICERR, and for institutions and researchers that may want to be affiliated members of the ICERR.

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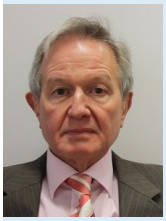
Introduction of Authors



Pablo Adelfang is the head of the Research Reactor Section, which covers utilization, modernization and refurbishment, infrastructure, research reactor fuel cycle, operation and maintenance and new research reactor projects.

Juan Carlos Benitez is a Nuclear Engineer in the Waste Technology Section. The focus is on providing support to Member States upgrading their Disused Sealed Radioactive Source (DSRS) infrastructure and strengthening their technical/operational capabilities to safely and securely manage DSRS.

Arturo Bevilacqua is a Nuclear Engineer in the Nuclear Fuel Cycle and Materials Section. His work focuses on strengthening Member States technical and operational capabilities to manage the spent fuel from nuclear power reactors.

Hanna Kajander is a Communications Specialist in the Division of Nuclear Fuel Cycle and Waste Technology Section and is involved in activities that aim at improving public knowledge on radioactive waste management and nuclear fuel cycle.

Andressa Junger works in coordination with the technical officers on the Waste Technology Section Networks. Currently she is engaged in the CONNECT project, a web-based platform that functions as a gateway for interactions between individuals and organisations involved in all aspects of radioactive waste management.

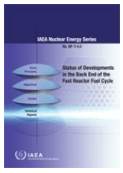
John Kinker is a Waste Management Information Specialist in the Waste Technology Section. He works on the collection and analysis of radioactive waste management information and the development of international collaboration tools to assist the Member States.

Sandor Tozser works in the Research Reactor Section on matters related to the Global Treat Reduction Initiative (GTRI) specifically on the Russian Research Reactor Fuel Return Programme and research reactor (RR) core conversion, on RR spent fuel back end solution, as well as on enhancement of research reactor utilization.

Recent Publications

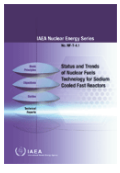
IAEA Nuclear Energy Series No. NW-G-2.1

Policies and Strategies for the Decommissioning of Nuclear and Radiological Facilities (2012) **NEW!**



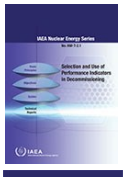
IAEA Nuclear Energy Series No. NF-T-4.2

Status of Developments in the Back End of the Fast Reactor Fuel Cycle (2011)



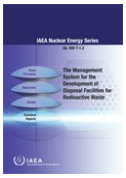
IAEA Nuclear Energy Series No. NF-T-4.1

Status and Trends of Nuclear Fuels Technology for Sodium Cooled Fast Reactors (2011)



IAEA Nuclear Energy Series No. NW-T-2.1

Selection and Use of Performance Indicators in Decommissioning (2011)



IAEA Nuclear Energy Series No. NW-T-1.2

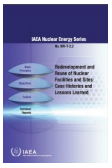
The Management System for the Development of Disposal Facilities for Radioactive Waste (2011)

IAEA Nuclear Energy Series No. NW-T-2.3

Decommissioning of Small Medical, Industrial and Research Facilities: A Simplified Stepwise Approach (2011)

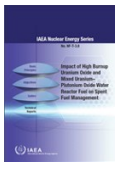
IAEA Nuclear Energy Series No. NP-T-5.2

Good Practices for Water Quality Management in Research Reactors and Spent Fuel Storage Facilities (2011)



IAEA Nuclear Energy Series No. NF-T-2.2

Redevelopment and Reuse of Nuclear Facilities and Sites: Case Histories and Lessons Learned (2011)



IAEA Nuclear Energy Series No. NF-T-3.8

Impact of High Burnup Uranium Oxide and Mixed Uranium-Plutonium Oxide Water Reactor Fuel on Spent Fuel Management (2011)

IAEA-TECDOC-1654

Advanced Fuel Pellet Materials and Fuel Rod Design for Water Cooled Reactors (2010)

Upcoming Meetings in 2012

Date	Title	Place	Contact
2–5 Jul	TR on Interaction between Technical and Social Aspects for Waste disposal programmes	Istanbul Turkey	P.Ormai@iaea.org
13–17 Aug	TR on Effective Regulatory and Environmental Management of Uranium Production	Darwin Australia	P.Woods@iaea.org
20–23 Aug	48th Joint OECD/NEA-IAEA Uranium Group Meeting	Kirovograd Ukraine	A.Hanly@iaea.org
21–24 Aug	TM on In-pile Testing and Instrumentation for Development of G4 Fuels and Materials	Halden Norway	V.Inozemtsev@iaea.org
10–14 Sep	TR on Feasibility of Low-specific-activity Mo-99 Production and Distribution	Vienna Austria	A.Carrigan@iaea.org
24–27 Sep	TM on Fuel Integrity During Normal Operating and Accident Conditions in Pressurized Heavy Water Reactors (PHWR)	Bucharest Romania	U.Basak@iaea.org
1–3 Oct	TM on the Uranium Production Cycle Network on Education and Training (UPNET)	Vienna Austria	P.Woods@iaea.org
1–5 Oct	TM on Risk Management and Decommissioning	Vienna Austria	P.Osullivan@iaea.org
15–19 Oct	TR/Workshop on Environmental Remediation of Contaminated Sites and Life Cycle Environmental Management	Vienna Austria	H.Monken-Fernandes@iaea.org
15–19 Oct	TR for NEWMDB Country Coordinators	Vienna Austria	J.Kinker@iaea.org
22–24 Oct	TM on Very Long Term Storage of Spent Fuel	Vienna Austria	A.Bevilacqua@iaea.org
6–8 Nov	Annual Forum of the International Decommissioning Network (IDN)	Vienna Austria	P.Osullivan@iaea.org
6–8 Nov	Plenary Meeting of the Network on Environmental Management and Remediation (ENVIRONET)	Vienna Austria	H.Monken-Fernandes@iaea.org
20–23 Nov	TM on the Optimization of In Situ Leach Uranium Mining Technology	Vienna Austria	A.Hanly@iaea.org
3–7 Dec	TM on Underground Research Laboratories for Geological Disposal of High Level Waste (URF)	Albuquerque USA	P.Degnan@iaea.org
4–7 Dec	TM on Trends in the Development of Advanced Fuels for Fast Reactors	Kalpakkam India	U.Basak@iaea.org
5–7 Dec	TM on Integrated Nuclear Fuel Cycle Information Management: Trends and Developments	Vienna Austria	H.Tulsidas@iaea.org
10–14 Dec	TM on Cost Estimation for Decommissioning	Vienna Austria	P.Osullivan@iaea.org

Division of Nuclear Fuel Cycle and Waste Technology

Website Links

Division Introduction – The NEFW Home

- www.iaea.org/NuclearFuelCycleAndWaste

Nuclear Fuel Cycle and Materials Section (NFCMS)

- Main activities
  www.iaea.org/NE/NuclearFuelCycle
- Technical Working Group on Nuclear Fuel Cycle Options (TWGNFCO)
  www.iaea.org/NE/NuclearFuelCycle/twgnfco
- Technical Working Group on Water Reactor Fuel Performance and Technology (TWGFPT)
  www.iaea.org/NE/NuclearFuelCycle/twgfpt
- Integrated Nuclear Fuel Cycle Information System (iNFCIS)
  www.iaea.org/NE/NuclearFuelCycle/infcis

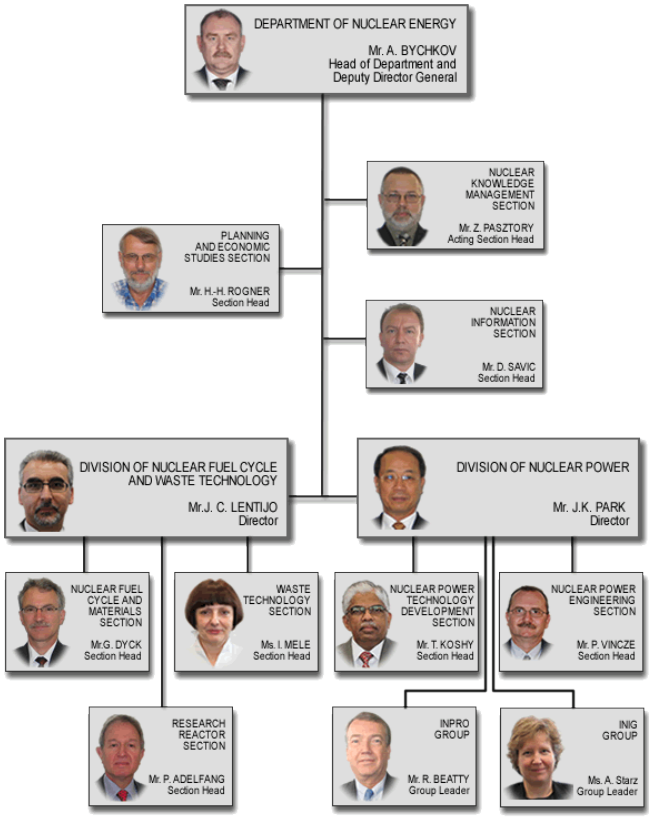
Waste Technology Section (WTS)

- Main activities
  www.iaea.org/NE/WasteTechnology
- International Radioactive Waste Technical Committee (WATEC)
  www.iaea.org/NE/WasteTechnology/watec
- Technical Group on Decommissioning (TEGDE)
  www.iaea.org/NE/WasteTechnology/tegde
- Databases (NEWMDB, DRCS)
  www.iaea.org/NE/WasteTechnology/databases

Research Reactor Section (RRS)

- Main activities
  www.iaea.org/NE/ReseachReactors
- Technical Working Group on Research Reactors (TWGRR)
  www.iaea.org/NE/ReseachReactors/twgrr
- Research Reactor Database
  nucleus.iaea.org/RRDB/RR/ReactorSearch.aspx?rf=1
- Research Reactor Ageing Database
  www.iaea.org/NE/ReseachReactors/AgeingDatabase

Organizational Structure



IAEA
International Atomic Energy Agency

Nuclear Fuel Cycle and Waste Technology

Staff Changes

Newcomers…

Nuclear Fuel Cycle and Materials Section:

Ms *Adrienne Joyce Hanly*,
Uranium Resources Specialist

Mr *Peter Woods*,
Uranium Production Specialist

Research Reactor Section:
Mr *Andrea Borio de Tigliole*,
Nuclear Engineer

Waste Technology Section:

Mr *Jiri Faltejsek*,
Radioactive Waste Management Specialist

Ms *Julia Whitworth*,
Nuclear Engineer

Mr *Akira Izumo*,
Communications Specialist

...and Goers

Waste Technology Section:

Mr *Mamoru Maeoka*,
Communication Specialist

Mr *Lumir Nachmilner*,
Nuclear Engineer

In the Next Issue of the NEFW Newsletter

- Greetings from the New Division Director Juan Carlos Lentijo
- Where is EPPUNE Going?
- Recovering Two Irradiators in Costa Rica
- Tools to Evaluate Costs of Dismantling Research Reactors
- Action Plan Status
- Assuring Uranium Resources for the Future

Impressum

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