

## **ISOE News No.23, September 2015**

*ISOE Asian, European, North American and the IAEA Technical Centers*

*ISOE NEWS is a project of the ISOE Joint Secretariat (OECD/NEA & IAEA)*

### **2015 ISOE International ALARA Symposium**

The 2015 ISOE International ALARA Symposium was held in Rio de Janeiro, Brazil from 26 to 28 May 2015.

It was organised by the Brazilian ISOE National Co-ordination Centre as a member of the ISOE IAEA Technical Centre with the support of ELETRONUCLEAR, in collaboration with the Institute of Radiation Protection and Dosimetry (IRD) and the Brazilian Radiological Protection Society. The OECD Nuclear Energy Agency (NEA) co-sponsored this Symposium. Around 70 participants from 15 countries and international organisations attended the Symposium. A technical exhibition was also organised and 7 exhibitors were present, giving participants the opportunity to see the latest developments from industrial and commercial companies active in fields of radiation protection.

Through 24 oral presentations and 13 posters following topics were covered:

- RP Management
- Dosimetry and Monitoring
- RP and Regulatory Issues
- RP at the Design Stage of Activities
- Source Term Management
- RP in Decommissioning
- Job Specific Experience



Three distinguished papers were selected by the programme committee:

#### **1. ALARA Planning and Controls According to the Angra NPS ALARA Program**

By W. Alves Ferreira, L. Teixeira Marcos, Angra NPP, Brazil

This paper presents the organisation adopted by Angra for the task planning. Starting from an initial work assessment, a dose estimate by task is calculated. The degree of the ALARA analysis is selected according to the level of planned collective or individual dose. Several ALARA tools are used such as the ALARA check-list, database of work area's pictures, Radiation Work Permit, Feed-back analysis after work completion, etc. As a result, the actual outage collective dose is well below the estimates.

#### **2. EDF Feedback on the management and the treatment of Ag-110m contamination**

By M. Benfarah, EDF SEPTEN, France

The contamination of PWR circuits by silver-110m can have a significant impact on radiation protection. Many PWRs have experienced problems with Ag-110m pollutions during reactor shutdowns, with significant contamination of auxiliary circuits. The sources of silver release in the primary coolant could be either a leaking hole in the silver-indium-cadmium (AIC) control rods or wear of some silver-coated seals (Helicoflex seals). The determination of the source of the released silver and the decontamination of the circuits polluted by

silver-110m represent an important challenge to improving the source term management. This paper presents EDF's experience on these issues.

### 3. How R&D may help to improve RP performance at the decommissioning stage of nuclear power plant

By G. Laurent (EDF CIDEN), L. Vaillant (CEPN), France

Within the framework of the dismantling of nine facilities, this paper explores several options to improve current and future dismantling projects, taking into account various constraints such as industrial safety, RP, costs, regulatory constraints, waste management issues, etc. It develops several topics: strategy of dismantling, learning from international experiences, needs of R&D in the field of source term characterisation, wireless communication and remotely operated equipment.

Proceedings are available on the [ISOE website](#).

Pictures from the Symposium are available on a dedicated [IRD Facebook® page](#).

### Technical Tour

On Thursday, 28 May 2015, a technical visit took place at Angra Nuclear Power Plant. It notably allowed visiting the Angra 3 site under construction.

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## 2015 ISOE Asian ALARA Symposium

2015 ISOE Asian ALARA Symposium was held on 9-11 September 2015 in Tokyo, Japan. The Asian Symposium was sponsored by the ISOE Asian Technical Center located at the Nuclear Information Centre, Nuclear Safety Research Association (NSRA). The Asian Symposium was attended by ISOE members from Japan, Finland, Austria, Republic of Korea, Sweden and USA.



Hiroko Tezuka, Nuclear Safety Research Association, opened the 2015 ISOE Symposium and provided an overview of the Asian Technical Center activities in 2015.

Kazuo Shimomura, Deputy Director, OECD NEA, presented the Special Lecture on Recent OECD/NEA Activities in Nuclear Safety Regulation and Nuclear Emergency Matters.

Ko Togasaki, Nuclear Regulatory Authority, Japan, opened the regulatory session with a paper entitled "Revision of regulation for radiation exposure on emergency workers". Ko Togasaki is Deputy Director, Nuclear Regulation Policy Planning Division. He discussed the latest Japanese regulations regarding accident doses. This is an important paper explaining the summary of investigation of the dose limit for emergency workers. The change from 100 mSv to 250 mSv is discussed, in addition to the schedule for the revision of the Japanese regulation of emergency workers, which should be enforced by April 2016.



A summary of the emergency dose reference values (“limits”) and how they are applied in several countries is provided below:

Organization /State	ICRP Pub. 103 (2007)	IAEA NO. GSR Part 3 (interim)	IAEA Guidance	Japan	U.S.A.	France	Canada	Korea
Dose limit for emergency workers (mSv)	< 500 or 1000 (No limit for high benefit)	< 500	life saving actions < 1 Gy	100 (2011.3.14 ~ 12.16: temporarily changed to 250)	250 (depend on the risk analysis for life saving)	100 (300 for life saving, but less than 1,000)	500 (exceed 500 for life saving)	500 (No limit for life saving)

“Preparedness for Future Nuclear Emergencies Based on Lessons Learned from TEPCO Fukushima Daiichi NPP Accident” by Shojiro Yasui, Ministry of Health, Labour and Welfare, Japan provided a discussion of the long-term care for emergency workers at TEPCO Fukushima Daiichi Nuclear Power Plant. He discussed the process of selecting emergency workers by employers and the optimization of dose controls during emergencies. Employers must calculate and record the cumulative effective doses monthly, annually and every five years. Records must be preserved for 30 years.

Two Distinguished Papers were selected by the Technical Program Committee:

**1. Improvement of the Labor Environment at Fukushima Daiichi Nuclear Power Station**

By Yasuhito Nishida, Radiation Protection and Management Group, Tokyo Electric Power Company. A reduction in dose rates at the Fukushima Daiichi site is described in detail in the complete paper. This paper was of particular interest to the attendees because TEPCO announced important achievements at the Fukushima Daiichi Nuclear Power Station site including:

- Fuel has been removed from the Unit 4 spent fuel pool.
- Work has started on the removal of large rubble within the Unit 3 spent fuel pool.
- Preparations are underway to remove fuel and fuel debris from Units 1, 2 and 3.
- 8000 workers are currently on site with an increase in work force planned
- Areas which require full face masks have been significantly reduced
- A large rest building has been constructed to provide food service and sleeping rooms for the workers. This building is also used for office work and safety check of workers.



**2. Development of Integrated Drain Information System for Reducing Radiation Exposure**

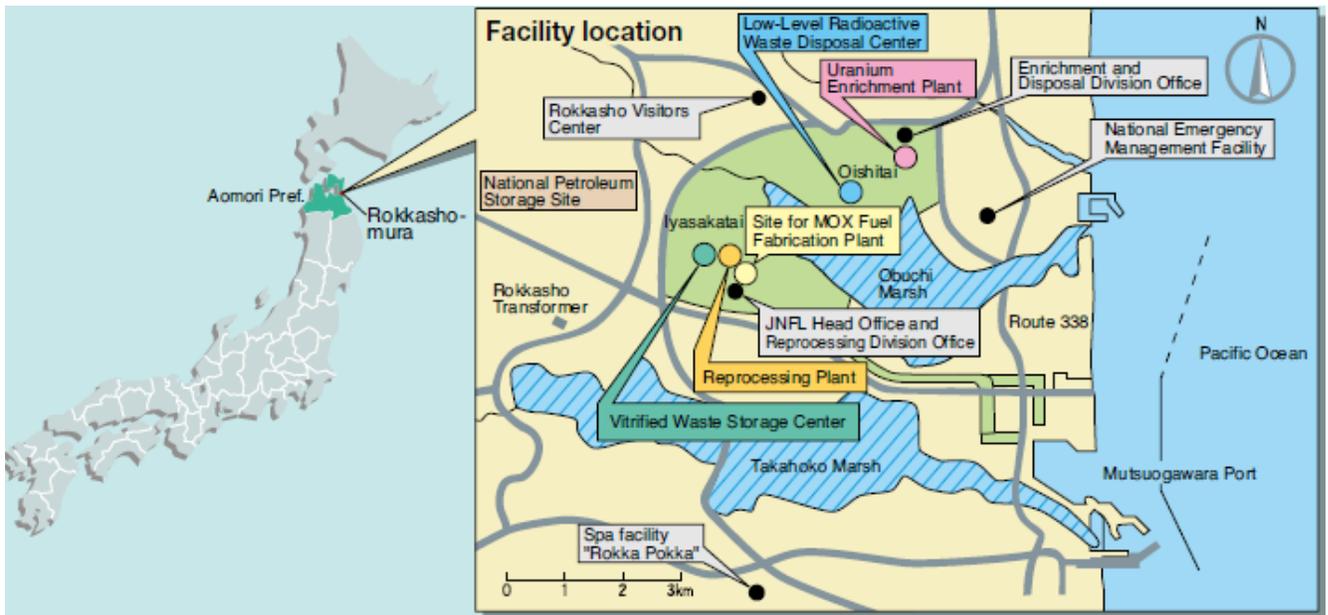
By Dong-ug Kim, Korea Hydro & Nuclear Power Co., Republic of Korea Mr. Kim discussed an ambitious program to systemise the liquid drain piping at operating nuclear plants so that the location of radioactive leaks could be readily identified. Piping drawings were researched and compared with plant piping systems. Where non-conforming drain piping was discovered, the piping design was changed. The result of the program was the creation of a drain database and mapping system to increase visibility of the plant drain piping system. The integrated drain information system contains piping drawings and a drain database which will reduce both workers’ and public exposure to radiation by finding the location of radioactive leaks faster for quick actions.



Proceedings are available on the [ISOE website](#) as well as on the [ATC website](#).

## Technical Tour

A technical tour of the Japan Nuclear Fuel Limited (JNFL) was held on Friday, 11 September 2015; sixteen participants joined the tour. The attendees boarded the Shinkansen bullet-train from Tokyo to Shichinohe-Towada. They visited PR centre of JNFL and learned the various activities on radiation protection through lectures by JNFL staffs. They entered into the radiation controlled area of the reprocessing facility and then had a chance to visit the control room and spent fuel receiving and storage facility.



Japan Nuclear Fuel Limited (JNFL)

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## New ISOE Working Group

This year the “**Working Group on Radiological Protection Aspects of Decommissioning Activities at NPPs**”: **WGDECOM** was launched.

The objective of the working group (WG) is to provide a forum for experts to develop a process within the ISOE programme to better share operational RP data and experience for NPPs in various stages of decommissioning or in preparation for decommissioning. The working group will report regularly to the ISOE Management Board. The 2015-2018 Terms of Reference specify that the WG will identify:

- the areas of operational RP for NPPs planning decommissioning or in the process of decommissioning that are most relevant for effective management of occupational exposure;
- the operational data that can be collected through the ISOE databases in order to suggest trends and aspects that can be studied and used for benchmarking as a starting point for more in-depth analyses;
- a network of operational RP experts at NPPs who are planning decommissioning or who are in the process of decommissioning for the ISOE Management Board to see how they can be integrated into the ISOE programme to effectively exchange occupational exposure management experience;
- factors and aspects that play key roles in achieving good practices in decommissioning (knowledge and institutional memory, experience, technology, regulatory requirements and guidance, worker

involvement, information exchange and networking, radioactive low and medium level waste management , etc.), and analysing and quantifying their possible impact on occupational doses.

The WGDECOM first met on 8-9 June 2015, and the second meeting is scheduled for 26-27 October 2015. The group is composed of 28 full and corresponding members from 13 countries. The Chair is Mr James Mike Hale (Kewaunee NPP, USA). The Vice-Chair is Mr Ignacio Calavia (CSN, Spain).

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## New ISOE Secretariat at OECD NEA

After nearly 5 years of loyal and efficient service, Mr Burcin OKYAR left OECD NEA. The new persons in charge of ISOE Secretariat at NEA are:

**Mr Aleksandr RAKHUBA**

Tel.: +33 (0) 1 45 24 11 07

E-mail: [aleksandr.rakhuba@oecd.org](mailto:aleksandr.rakhuba@oecd.org)

**Ms Olvido GUZMÁN LÓPEZ-OCÓN**

Tel.: +33 (0)1 45 24 10 45

E-mail: [olvido.guzman@oecd.org](mailto:olvido.guzman@oecd.org)

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## ISOE Meetings in 2015

- WGDECOM - 26-27 October 2015, OECD NEA, Issy-les-Moulineaux, France
- WGDA - 16-17 November 2015, IAEA, Vienna, Austria
- Bureau - 17 November 2015 (pm) and 19 November 2015 (pm), IAEA, Vienna, Austria
- Management Board - 18-19 November 2015, IAEA, Vienna, Austria

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## Future ISOE ALARA Symposia, Dates and Locations

- **2016 ISOE North American Symposium, 11-13 January 2016, Ft. Lauderdale, USA**
- **2016 ISOE International Symposium, 1-3 June 2016, Brussels, Belgium**

Announcements, calls for papers and registration forms of these symposia can be found on the [ISOE website](#)