

Conclusions from the ISOE International Symposium Brussels, 1 – 3 June 2016





Radiation Protection Success of Steam Generator Replacement in Blayais unit 3 (2014)

J. Bonnefon, G. Ranchoux, O. Backes (EDF DIPDE, France), B. Roustit, H. Caullier (Blayais NPP, France), J. Sergeat, K. Hamon, D. Marié (AREVA NP, France)



ALARA Program and RP Activities for the Reactor Vessel Head Replacement at CN Vandellòs II

A. Prim Pujals, J. L. Sarria Gálvez, I. Vildósola Hernandez, A. Ribas Goset (Vandellòs II NPP, Spain)



The Way to Optimize Radiation Exposure Index at the Russian Nuclear Power Plants

I. Doljenkov (Rosenergoatom, Russia), A. Kuchin (Kola NPP, Russia)



Lessons Learned from the Failure of Leak Monitoring System of Steam Generator

Moonhyung Cho, Kidoo Kang, Yuho Weon

Central Research Institute, Korea Hydro & Nuclear Power

Participation

European Technical Centre

ISOE

138 Participants

24 Countries

• Armenia

LES

- Austria
- Belgium
- Brazil
- Canada
- China
- Czech Republic
- Finland
- France
- Germany
- Hungary
 - Japan

- Republic of Korea
- Romania
- Russian Federation
- Slovak Republic
- Slovenia
- South Korea
- Spain
- Sweden
- Switzerland
- The Netherlands
- UK
- Ukraine
- USA

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Presentations, Posters and Displays

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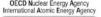
7 Themes

- ISOE System
- Follow-up of Fukushima Accident
- Source Term Management
- Measurement
- Decontamination
- Large Job Experience
- Education and Training
- Radiation Protection Management
- Decommissioning

34 Oral Presentations, 25 Posters

Soon available on the ISOE-network website

10 Vendors



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Energy Agency

Summary and outcomes (1)

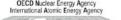
Session 1.

 ISOE System: an active and enthusiastic information exchange network.

- 2016-2019 Strategic Plan focus on new topics
 - Refurbishment and plant life extension
 - Education and training
 - Collection of lessons learned from events
- Major role of ISOE at different levels:
 - Contribution to International organisation providing recommendations and expert view (NEA CRPPH)
 - Contribution at a utility level of a plant

- Follow-up of Fukushima Accident

• Major improvement of working conditions were made with the re-zoning of the site, which was possible after the major decontamination



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Summary and outcomes (2)

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Session 2. Source Term Management

- Role of indexes / indicators (RCS index, RB index, CZT gamma spectrometry,...)
- Use of **new technologies** (in situ gamma spectrometry, CZT gamma camera) to improve measurements, follow-up of source term activity
- Development of strategies adapted to the type of circuits: shieldings / chemical decontamination/ hot spot elimination/
- Emerging issues : Ag-110m or SB-124
 - Source and cause of pollution?
 - Indicators?
 - Treatment ?
- Proposal to create a source term reduction indicator shared at the international level

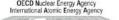
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Summary and outcomes (3)

Session 3. Measurements

- Promising R&D in progress for the development of Neutron detector
- Exploration of the possibilities offered by the use of Gamma camera
 - Work area characterization, Emergency, Fuel evacuation,...
- Use of in-situ gamma spectrometry
- Air sampling systems, with a focus on PSA
- Methodology to **reduce the number of radionuclides** to be taken into account at design stage of systems or buildings



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Summary and outcomes (4)

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Session 4. Decontamination

- System Decontamination for BWRs (Spain & Sweden)

- Collective dose reduction obtained
- R&D analysis to elaborate relevant surface treatment allowing to reduce recontamination
- Issue of alpha active nuclides released from oxide layers
 - Knowledge of plant history important to estimate risk

– Analysis of the impact of the CANDU Purification System:

• Based on the inventory of radionuclides present in the resins and filters

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Summary and outcomes (5)

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Session 5. Large Job Experiences

- Steam Generator Replacement Reactor vessel head replacement
 - Several RP Actions : shielding decontamination hot spot management – water level – cold shutdown procedure,...
 - Role of planning stage to identify main ALARA actions but also necessary to plan the follow-up & implement a specific organisation to ensure implementation of these actions.
 - Role of ALARA WG, ALARA teams integrated to the projects
 collaboration of all SHs focussing on the same radiation protection objectives.
 - Difficulties to predict the exposed man-hours (overestimation)
 - Issue of Transport and Storage
- Development of Integrated Drain Information System to find easily a leak at a NPP

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Summary and outcomes (6)

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Session 6. Education and Training

– European Guidance for RPO & RPE

- A necessary harmonization specially for transient workers
- Need for mutual recognition of RPO

Ageing – Safety Authority Brazil

- Anticipation; training various forms; importance of continuing education
- Integration of human factors within the design of a training tool
 - Integration of ergonomic criteria to go from a training tool to a whole training package

- Importance of RP Planning in education & training

• Use of scenarios, places the person in a realistic work situation.

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Summary and outcomes (7)

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Session 7. RP management

– "Simplification" – workers, RP staff -

 Tools (Radiobox, distribution of radioactive sources,...), Documents, Procedures (road map)

Demonstrating ALARA from the point of view of Authorities

- An interesting list of ALARA criteria
- Illustrations of "Work Management to reduce occupational exposure"
 - Comprehensive set of actions and dose reduction Measures in Russian NPP Organization, Technologies, Decontamination,
 - Nearly 10 years of dose reduction programme in CANDU, Plant radiological condition (reducing leaks, use of dryers, personnnal protective equipments, ...)

Site under construction : issue of managing radiographic control

• Need for a clear delineation of responsibilities, a coordination between all stakeholders, a precised planning and organisation

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Summary and outcomes (8)

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Session 8. Decommissioning

– ISOE WG on Decommissioning

• Creating a dedicated network under ISOE headings, Benchmarking visits, lessons learned

- Lessons learned from three Decom Projects

- A waste producing operation, Not planned at the design, Loss of knowledge, One shot operation, also non radiological risks,...
- Development of a Global Safety Culture

- Decommissioning of Spent Fuel Channel

• Use of remote handling, shielded boxes

- Jose Cabrera

- Full System Chemical Decontamination
- Status of work



ASIAN REGIONAL ISOE SYMPOSIUM

Fukushima, Japan

7 – 9 September 2016

Organised by the Asian Technical Center

OECD Nuclear Energy Agency International Atomic Energy Agency	2.5		L.		
ISOE			Next ISOE symposia		
European Technical Centre					
MARKE ST					

INTERNATIONAL ISOE SYMPOSIUM ISOE 25th Anniversary

Fort Lauderdale, USA

9 – 11 January 2017

Organised by the North American Technical Center



All information on:

WWW.ISOE-NETWORK.NET

Do not hesitate to ask for your password to access the ISOE members areas



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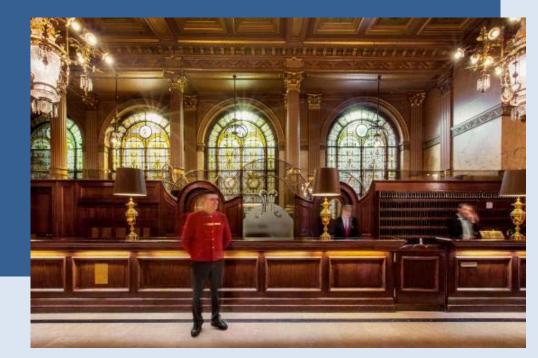
SYMPOSIUM

CONGRESS DINNER

<u>Thursday 2 June – 19h00</u> sponsored by ENGIE Electrabel at Hotel Metropole Address: 31, place de Brouckère - 1000 Brussels

Metro: 'de Brouckère' Station

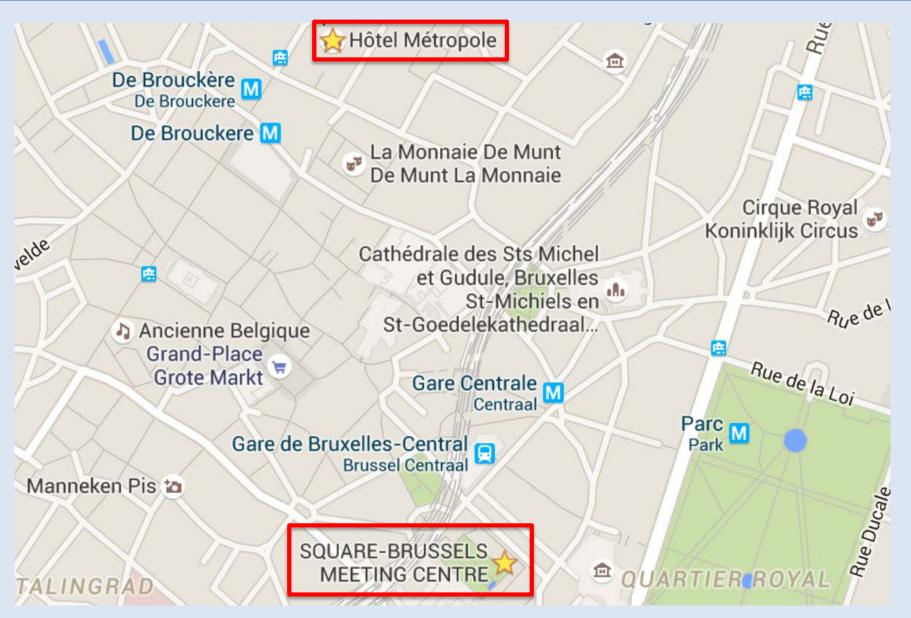
Do not forget your badge !!





ISOE INTERNATIONAL SYMPOSIUM

June 1-2, 2016 • Brussels





ISOE INTERNATIONAL SYMPOSIUM

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SCK·CEN TECHNICAL VISIT

Friday 3 June

Underground research facility | HADES

Radiobiology and Dosimetry labs

08:30 Bus Departure ("Mont des Arts – Kunstberg" street left side of Square)

Do not forget to bring your ID / passport

WARM THANKS

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ISOE

- Programme Committee Members
- Speakers and Authors of Posters
- Exhibitors
- Sponsors:
 - ENGIE Electrabel
 - FANC/AFCN
- Organisation staff:
 - CEPN: Lucie d'Ascenzo, Laure-Anne Beltrami
 - ENGIE Electrabel: Benoit Lance & colleagues
 - FANC/AFCN: François Henry
 - Square Team
- All Participants





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We are looking forward already to seeing you

at the next European ISOE Symposium

to be held in 2018