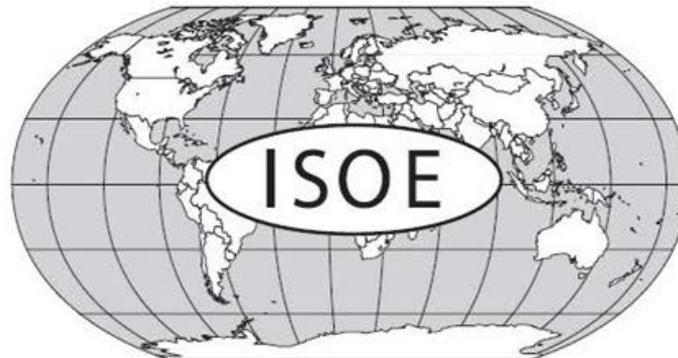


ISOE

Strategic Programme Plan (2016~2019)

Dr. Tae-Won Hwang
ISOE Chairman &
Director General of KHNP



INFORMATION SYSTEM ON OCCUPATIONAL EXPOSURE
ИНФОРМАЦИОННАЯ СИСТЕМА ПО ОЦЕНКЕ ДОЗ

Contents

- Overview of ISOE Programme
- Future Directions
- Summary

Overview of ISOE Programme (1/5)

Missions

- Provide a forum for radiation protection professionals from **nuclear electricity utilities and national regulatory authorities**
- Share dose reduction information, operational experience
- Improve the optimization of RP at nuclear power plants

Overview of ISOE Programme (2/5)

Main Activities

- Annual reporting of reactor unit doses
- Collecting and exchanging of best RP practices
- Publishing Expert / Working Groups' reports
- Holding regional and Int'l ALARA Symposia

Overview of ISOE Programme (3/5)

Participations (April 2016)

- Total countries: 31
- Utilities: 71
- Authorities: 26

Database : 4 Categories

- Countries: 29
- Operating Unit: 401
- Units in cold-shutdown or some stage of decommissioning : 81

91% of the world's operating commercial power reactors

Overview of ISOE Programme (4/5)

Belgium, Czech Rep., Finland, France,
Germany, Hungary, Italy, Netherlands,
 Russian Fed., Slovak Rep., Slovenia, Spain,
 Sweden, Switzerland, UK

Japan, Rep. of Korea

Armenia, Belarus, Brazil, Bulgaria, China,
 Lithuania, Pakistan, **Romania**, South Africa,
Ukraine, UAE

Canada, Mexico, USA

European TC (CEPN)

Asian TC (NSRA)

IAEA TC

North American TC

National Coordinators

Structure

WGDECOM

WGDA

Specialized Working
 Groups

Participating Utilities & Regulatory Authorities

Joint NEA / IAEA
 Secretariat

OECD NEA
 CRPPH



ISOE Management Board

ISOE Bureau

Chairman of the ISOE System		Chairman elected	
	Yoon Wook (2008-2011) Korea Hydro & Nuclear Power Co. Ltd (KHNP) Phone: +82 42 950 5000 Email: yw001@khnp.co.kr		Marcelo Andrade dos ANTONIO Abaterros Termonuclear S.A. - (ABATERROS) Phone: +55 11 506 7577 3333 Email: marcelo@abaterros.com.br
Vice-Chair		Past-Chairman	
	Andreas Gasser (2011-2014) Swiss Nuclear Power (SNP) - (SINATRA) (SNP) Phone: +41 26 460 0000 Email: andreas.gasser@sinatra.ch		William WARDEN Energy Research Phone: +1 301 763 0300 Email: ward@energyresearch.gov
ISOE Joint Secretariat		ISOE Joint Secretariat	
	Shahrooz KARIMIA International Atomic Energy Agency (IAEA) Phone: +93 1 380 1107 Email: shahrooz.karimia@iaea.org		Samuel NG International Atomic Energy Agency (IAEA) Phone: +93 1 380 2072 Email: sng@iaea.org

NETWORK

DATABASE

NEA IT

Annual / Topical
 Reports

ALARA
 Symposia

Technical
 Support

Analyses



Overview of ISOE Programme (5/5)

Key achievements & Outcomes in 2015

Improved use of central web portal

2014 data collected and integrated into the DB

DB distributed to Participants via ISOE Website and CD-ROM

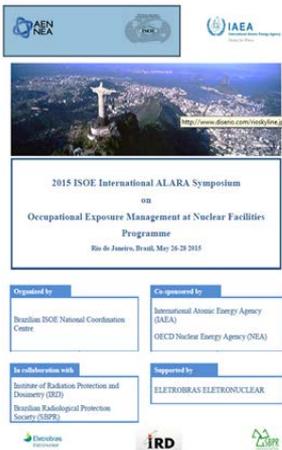
Improvements of ISODAT data input and analysis

Country and Consolidated TC Pls Report

Symposium

ISOE News

Info. sheets



2015 ISOE International ALARA Symposium
on
Occupational Exposure Management at Nuclear Facilities
Programme
Rio de Janeiro, Brazil, May 24-29 2015

Organized by:
Brazilian ISOE National Coordination Centre

Co-sponsored by:
International Atomic Energy Agency (IAEA)
OECD Nuclear Energy Agency (NEA)

In collaboration with:
Institute of Radiation Protection and Dosimetry (IRD)
Brazilian Radiological Protection Society (SBRS)

Supported by:
ELETTORNAS ELETTRONUCLEAR



2016 North American ISOE ALARA Symposium Agenda
Hyatt Regency Fort Sixty-Six
2301 S.E. 17th Street Causeway
 Ft. Lauderdale, Florida 33316 USA
 Phone: 954-525-6666

**Reduction in Costs & Worker Doses During Outages:
Good Practices & Lessons Learned at PWR, BWR & CANDU**
Plus
**Comprehensive Update on the Restarting of Japanese Nuclear Power Plants Based
On Lessons Learned from the Fukushima Daiichi Accidents**

Monday, January 11, 2016	Location
7:00 am	Registration
8:00 am	WELCOME - John Palm, PhD Crystal Ballroom A
8:30 am	Session Chair: John Palm, PhD, Distinguished Professor & Professor Emeritus, University of South Carolina, Election Board Member Emeritus & NRC's History Board Chair
9:00 am	Plenary Session 1: Restarting of Japanese Nuclear Power Plants Based On Lessons Learned from the Fukushima Daiichi Accidents Improvements at Kashiwazaki-Karlsruhe Nuclear Power Plant Shuichi KAWAMURA, General Manager, Nuclear Asset Management Dept. & Nuclear Seismic Engineering Center, Tokyo Electric Company, JAPAN
9:00 am	Restart Status of Japanese NPPs, Fibred Constraint Vending System (FCVS), New Regulators' Requirements & Super Engineer Education Project Dr. Tadashi Natsuyoshi, Nuclear & Environmental Systems, Hokkaido University, JAPAN

Symposium Schedule

Date	Time	Registration
Sep. 9 (Thu)	11:00-11:30	Registration
	13:30-14:00	Opening Special Lecture
	15:00-16:30	Session 1
Sep. 10 (Fri)	08:30-11:30	Session 2
	13:30-14:30	Workshop Presentation
	16:00-20:30	Session 3
Sep. 10 (Fri)	08:00-10:30	Session 4
	10:30-12:30	Session 5
	13:30-15:30	Session 6
Sep. 11 (Sat)	15:45-16:40	Session 8
	19:45-21:00	Technical Time to NPPs

2016 North American ISOE ALARA Symposium, January 11-13, 2016, Ft. Lauderdale, FL, USA



ISOE NEWS
Elections edition
www.isoenetwork.net

ISOE News No.23, September 2015
ISOE Asia, European, North American and the USA Technical Centres
ISOE NEWS is a project of the ISOE Joint Secretariat (EPCONEA & IAEA)



2015 ISOE International ALARA Symposium
The 2015 ISOE International ALARA Symposium was held in Rio de Janeiro, Brazil from 24 to 29 May 2015.

It was organized by the Brazilian ISOE National Coordination Centre as a member of the ISOE ALARA Technical Centres with the support of ELECTORNAS, 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 the Symposium. Around 70 participants from 15 countries and international organizations attended the Symposium. A technical exhibition was also organized 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, the following topics were covered:

- RPP Management
- Dosimetry and Monitoring
- RPP and Regulatory Issues
- RPP and the Design Stage of Activities
- Source Term Management
- RPP in Decommissioning
- Job Specific Exposure

Three distinguished papers were selected by the programme committee:

- ALARA Planning and Controls According to the Design Basis ALARA Program**
Dr. Alvaro Ferrero, S. Yasunori Morita, Angel RPP, Brazil
This paper presents the organization adopted by Angra for the task planning. Starting from an initial work assessment, a dose estimate to task is considered. The degree of the ALARA analysis is selected according to the level of present collective or individual dose. General ALARA tools are used such as the ALARA check list, estimation of work area's activities, Radiation Work Permit, Feedback analysis after work completion, etc. As a result, the actual collective dose is well below the estimates.
- EDF Feedback on the management and the treatment of Ag-110m contamination**
Dr. M. Bredon, EDF SFR
The contamination of PWR circuits by silver-110m can have a significant impact on radiation protection. Many PWRs have experienced problems with Ag-110m pollution 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-radiation-absorber (SRA) or the use of more than silver-coated tubes (intercluster cooling). The determination of the source of the released silver and the decontamination of the circuits followed by



ISOE INFORMATION SHEET
EUROPEAN DOSIMETRIC RESULTS FOR 2013
General Distribution
October 2015

ISOE European Technical Centre - Informative Sheet No. 99

This ISOE Information Sheet presents the average annual collective dose per reactor (PWRs, BWRs, CANDU) for the period 2011-2013 in the European countries participating in ISOE.

Maximum change in 2013:
• France: +10% (due to the increase in the number of reactors)
• Belgium, Germany, United Kingdom: -10% (due to the decrease in the number of reactors)

In 2013 the average annual collective dose per reactor for PWRs increased from 0.10 to 0.16 mSv, mainly due to an increase in the number of reactors (the plant load an edge with significant maintenance work) (see Table 1).

Regarding BWR reactors, a slight decrease is observed in terms of average collective dose per reactor (0.08 mSv in 2012 compared to 0.09 mSv in 2011), mainly due to a decrease in the number of reactors (see Table 1).

Regarding CANDU reactors, the average annual collective dose per reactor for CANDU reactors increased from 0.02 to 0.03 mSv, mainly due to an increase in the number of reactors (the plant load an edge with significant maintenance work) (see Table 1).

Regarding VVER reactors, the average annual collective dose per reactor for VVER reactors increased from 0.02 to 0.03 mSv, mainly due to an increase in the number of reactors (the plant load an edge with significant maintenance work) (see Table 1).

For further information on the evolution of collective dose per reactor for PWRs in Europe please refer to the Country reports in ISOE annual report published on the ISOE website (www.isoenetwork.net).

Future Directions (1/5)

Background

- MB decided to prepare new SPP in Nov 2014.
- New SPP was established in March 2016.

Factors and Considerations

- The need for member utilities to develop and maintain effective and efficient ORP programs
- The need to anticipate, respond to and resolve societal challenges to the operation of NPPs
- The will to support of the development and maintenance of ORP programs
- An increase in demand for value and accountability on the ISOE program
- The need to reconsider standing costs, and processes

Future Directions (2/5)

Objectives

- Meet expectations of **members**
- Support the extension of the programme to countries newly **embarking** on the use of nuclear power and to **non-members**
- Continue **exploring approaches** to maintain worker doses ALARA
- Develop **collaborative** efforts with other networks

Future Directions (3/5)

Goals for 2016-2019 Programme of Work

➤ Continuation of current ISOE activities

- Regional and International ISOE ALARA Symposia
- Collecting annual occupational exposure data for the ISOE database
- Regularly updating the content of ISOE network website
- Promoting the use of the ISOE forum
- Promoting WGDECOM and WGDA
- Facilitating benchmarking visits

Future Directions (4/5)

Goals for 2016-2019 Programme of Work

➤ New activities

- Examining **refurbishment** and **plant life extension**
- Establishing a **regular review** process for **ISOE documents** and **website**
- Establishing information exchange about **education** and **training** schemes, programs and syllabi for RP professionals
- Expanding the use of **TCA**s with international organizations
- Pursuing the collection, analysis, and sharing of data concerning **post-Fukushima** efforts
- Pursuing the examination of situations and events that could lead to **unexpected** and **unplanned** increases in dose

Future Directions (5/5)

Programme of Work for 2016

- Development of a roadmap for implementation
- Initiate organisation to be set for the identified new SPP activities
- Collect and integrate the 2015 data into the ISOEDAT databases
- Update the ISOE Network website
- International / Regional ISOE Symposia
- Publish 2015 ISOE Country Reports and Annual Report
- Issue TC Information Sheets, Newsletters and ISOE News

Summary

ISOE:

- performs many activities for dose reduction, optimization of RP, sharing of information, etc.
- becomes more important due to increase of need and interest for safe Radiation Management.
- established new SPP considering the need of members and new paradigm.

SPP:

- current activities performed successfully and new challenging activities
 - detailed implementation plans for successful accomplishment

As RP top leader, ISOE will play the most needed roles by successful implementation of SPP.



Coming together is a beginning.

Keeping together is progress.

Working together is success.

-Henry Ford-

OECD Nuclear Energy Agency
International Atomic Energy Agency



INFORMATION SYSTEM ON OCCUPATIONAL EXPOSURE

THANK YOU FOR YOUR ATTENTION

ISOE International Symposium
Brussels, Belgium
1st June 2016