



ISOE Programme Highlights

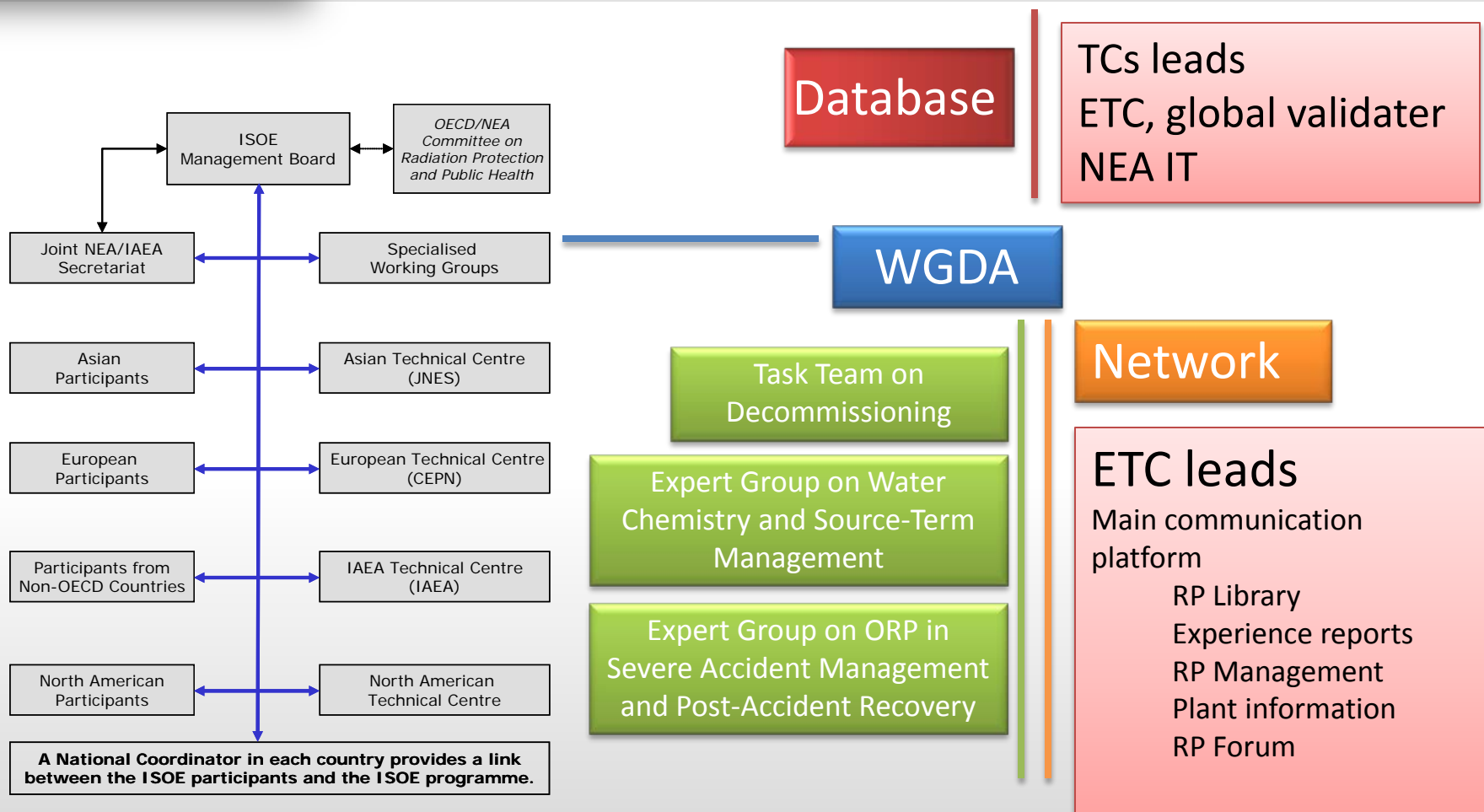
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OECD Nuclear Energy Agency
Radiation Protection and
Radioactive Waste Management Division

ISOE NATC ALARA Symposium
6 – 9 January 2013, Fort Lauderdale, Florida

Agenda

- Status of participation
- ISOE Database management / modifications
- ISOE Technical Centers Performance Indicators
- Pilot project-electronic reporting
- Expert Groups and regular activities

Structure



- Each group has specific mandate
- Product oriented
- Time limited

ISOE (20th anniversary)

- ISOE MB meeting; 14-15 November 2012
- MB Meeting; managerial issues and details of programme implementation
- New Chair- Mr. Willie HARRIS (US)
- Vice-Chair- Dr. Jorg KAULARD (Germany)
- Postpone the election for Chair-elect



Status of participation

- ISOE Terms and Conditions: NEA/CRPPH/ISOE(2012)1(*showing latest status, reapproved in 2011*)
- Official Participants
 - 70 participating utilities from 29 countries
 - Operating: 323
 - Shutdown: 40
 - 27 Regulatory authorities from 24 countries
- Office of Nuclear Regulation (an agency of the HSE) of the UK has an interest in participating to the ISOE as a regulatory authority.
- The new regulatory body of Japan (Nuclear Regulation Authority- NRA) has been invited to the ISOE Programme.

Status of participation

- 21st MB meeting resolution
- MB agreed
 - to initiate the renewal process at the beginning of 2012
 - to invite the participating utilities and authorities to confirm ongoing acceptance in written form
 - Communication with NCs
 - Operating reactors (46%)
 - Definitely shutdown reactors (38%)
 - Regulatory Authorities (50%)
- 22nd MB meeting
 - MB asked the Secretariat to communicate with RPMs and RA contact points

Signed acceptance forms

United States

American Electric Power Co.
Constellation Energy Group

Exelon Corporation

First Energy Corporation

Florida Power and Light

PPL Susquehanna, LLC
South Carolina Electric Co.
Southern Nuclear Operating Co.
Tennessee Valley Authority (TVA)

XCel Energy

D.C. Cook 1, 2
Calvert Cliffs 1, 2
Ginna

Braidwood 1, 2
Byron 1, 2
Clinton 1
Dresden 2, 3
LaSalle County 1, 2

Beaver Valley 1, 2
Davis Besse 1

Duane Arnold 1
Point Beach 1, 2
Seabrook

Susquehanna 1, 2
Virgil C. Summer 1
Vogtle 1, 2

Browns Ferry 1, 2, 3
Sequoyah 1, 2
Monticello

Nine Mile Point 1, 2

Limerick 1, 2
Oyster Creek 1
Peach Bottom 2, 3
Quad Cities 1, 2
TMI 1

Perry 1

St. Lucie 1, 2
Turkey Point 3, 4

Watts Bar 1

Operating
reactors

New:
Dominion-
Kewaunee

Exelon Corporation

Dresden 1
Peach
Bottom 1
Zion 1, 2

Definitely
shutdown
reactors

Participating RA

U.S. Nuclear Regulatory Commission (US NRC)

Signed acceptance forms

Canada

Bruce Power

Bruce A1, A2, A3, A4

Bruce B5, B6, B7, B8

Hydro Quebec

Gentilly 2

New Brunswick Power

Pt. Lepreau

Ontario Power

Darlington 1, 2, 3, 4

Pickering A1, A2, A3, A4

Generation

Pickering B5, B6, B7, B8

Hydro Quebec

Gentilly 1

Ontario Power Generation NPD

Operating
reactors

Definitely
shutdown
reactors

Canadian Nuclear Safety Commission (CNSC)

Participating RA

Signed acceptance forms

Mexico

Comisión Federal de
Electricidad

Laguna Verde 1, 2

Operating
reactors

Comisión Nacional de Seguridad Nuclear y
Salvaguardias (CNSNS)

Participating RA

ISOE Database management

ISOE 1 - 2011 data for operating reactors

- As the end of 2012:
 - Data entered directly on the web: 26 countries
 - Countries still using ACCESS: Armenia, Germany (except KKP), Russian Federation

ISOE 2

- Whole database: **11 ISOE 2 static, 30 ISOE 2 dynamic** (available on the web site in the RP Library)
- No more data collection

ISOE 3 reports

- No new report in 2012
- Whole database: **234 reports** (available on the web site in the RP Library)

ISOE Database management


Other management activities

- Database on ISOE Network website:
 - Data are available as soon as questionnaires are validated, for those entered directly on the web
 - Regular updates with data received on Access
- Distribution of CD-Rom for the ACCESS version:
 - 2011 data: will be sent in January 2013 – upon request for countries using application on the web

Modification of access rights

Permission to the ISOE participating RAs to review the completeness data for other countries (detailed data on jobs/tasks)

- agreed by the ISOE MB – completed by Dec 2012



ISOE

ISOE

ISOE 1

Questionnaires

Database

Export

Analysis Modules

MADRAS Analyses

Data completeness

Data extraction

Admin

Users

Contact

ISOE > Analysis Modules

ISOE 1 Data completeness

Country

Sweden

Utility

Type

PWR

Plant unit

Year

Reactor status

Clear

Table:

DOSE_DURATION_PERS

Prev

Next

Page: [1] 2 3 4

Country / Plant unit	Year	Jobs																								F	Actions																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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Status on Fukushima Accident

For the latest information concerning the status of Fukushima NPP Accident, see the following websites:

- Japan Nuclear and Industrial Safety Agency
- Japan Atomic Industrial Forum
- Tokyo Electric Power Company
- Japan Ministry of Education, Culture, Sports, Science & Technology
- International Atomic Energy Agency

Welcome to the ISOE Website



“The Information System on Occupational Exposure (ISOE) System was created in 1992 to **provide a forum** worldwide to **share dose reduction information, operational experience and information to improve safety**.”

ISOE is jointly sponsored by the OECD Nuclear Energy Agency (NEA) and the International Atomic Energy Agency (IAEA).

Next ISOE Meetings

- **ISOE Bureau**
22 April 2013 (morning), OECD, Paris, France
19 November 2013 (afternoon), OECD, Paris, France
- **Working Group on Data Analysis**
22-23 April 2013, OECD, Paris, France
18-19 November 2013, OECD, Paris, France
- **Expert Group on Severe Accident Management**
24-25 April 2013, OECD, Paris, France
21-22 November 2013, OECD, Paris, France
- **ISOE Management Board**
20-21 November 2013, OECD, Paris, France

ISOE Members Login

Hi H. Burçin OKYAR,

- [To request an account](#)
- [Forgotten password?](#)
- [Your Feedback](#)
- [Join ISOE](#)

What's new?

- [Documents](#)
- [RP Forum](#)
- [ISOE Website](#)

	Registered
Authority	123
Utility	685
EC	1
Technical Centres	18
Secretariat	3
TOTAL	830

ISOE Network Website

- On an average, 150 visits per week
- 3 495 different users
- Most visited pages
 1. Upcoming ALARA symposium
 2. ISOE database
 3. Forum
 4. Proceedings of the symposium
 5. RP Library (RP experience, Benchmarking)
 6. ISOE Publication



ISOE Network Website

Last documents posted on the ISOE Website

Publications

- ISOE News No. 19 (July 2012)
- NATC Information Sheet on PWR and BWR Occupational Dose Benchmarking Charts for 2006, 2007, 2008, 2009, 2010, 2011

Symposium

- 2012 ISOE European Symposium Proceedings Prague (Czech Republic), 20-22 June 2012
- 2012 ISOE International Symposium Proceedings Fort Lauderdale (USA), 8-11 January 2012

ISOE Management documents

- Working Group on Data Analysis (WGDA) meeting 17-18 April 2012, Paris, France

Last requests posted on the ISOE RP Forum

For Utilities only

- Aerosols on-line monitoring in NPP premises
- Fuel inspection
- Outage ALARA planning

Upcoming Symposia

- **2012 ISOE Asian Symposium Program**
Tokyo (Japan), 24-26 September 2012

RP Library

- Plant information doc.:
 - List of Reactors injecting Zinc
 - Steam Generator Replacements
 - Reactor Vessel Head Replacements
- RP Experience Reports:
 - Occupational dose and ALARA summary reports for 2011 from Ringhals (Sweden)
 - Cook 1R20 - 1R21 - 1R23 - 2R13 - 2R15 - 2R16 - 2R18, Calvert Cliffs 2R14 - 2R15, Farley 2R21, Hope Creek R25, Kewaunee 1R27 - 1R28 - 1R30, LaSalle 1R11, Limerick 1R13 - 2R11, McGuire 1R21 - 2R20, Oconee 1R26 - 2R25, Seabrook Cycle 8 - 10, South Texas 1R14, Susquehanna 1R13, Vogtle 1R16 (USA)
 - Collective dose budget reviewing
 - Work on Polar Crane during RCP operation
 - Handling alarms in tools box at exit monitors
 - CO2 blasting-torus

- **2013 ISOE North-American Symposium**
Fort Lauderdale (USA), 6-9 January 2013

ISOE TC PIs

- ISOE TCs have crucial role for the sustainable management of the Programme.
- Effectiveness should be evaluated with generally accepted mechanisms and performance reviews.

Article 3 (d) of the Terms and Conditions of the ISOE, which states that *“the Centers shall be so organized as to ensure that all tasks as directed by the ISOE Management Board, or through the ISOE Bureau, can be undertaken in a satisfactory manner, and shall meet periodically to coordinate these efforts”*.

ISOE TC Pls - Objectives

- Guidelines for performance monitoring and evaluation of technical centers
 - to evaluate the performance,
 - to highlight the short-comings,
 - to include the regional expectations from technical centers (specific for each technical center, regionally translated and timely reporting)
 - criteria should be established (written procedure- generic).

ISOE TC PIs

1. ISOE DATABASE MANAGEMENT

1.1 Data collection and entry to the database

- Details of data collection, data entry or any specific role in TC's respective region by indicating;
- Total number of units with reactor type in the region (operating and decom)
- Date - ALL data has been submitted to TC

1.2 Technical quality and validity of data submitted

- Quality Management System (only in the first collection period)
- Data validation , Quality control of data collected, and on-line and off-line storage and retrieval services

ISOE TC Pls

2. CONTRIBUTION AND FINALIZATION OF REPORTS

- Contribution to chapter on occupational dose studies, trend and feedback
- Info an evaluation of occupational dose trend in the region
- Info on specific chapter, as agreed by the WGDA
- Info on symposia organized during the reporting period
- Info on benchmarking visits organized during the reporting period
- Joint Secretariat compilation and publication of the report
- Input for the ISOE News and content
- Input for the ISOE Website Newsletter and content

ISOE TC Pls

3. ISOE NETWORK WEBSITE MANAGEMENT AND TC INPUT

ETC acts as the administrator and coordinator of the ISOE Network website.

ETC

- Describe requested or implemented website modifications (for example, new menu, category of documents...), management of user accounts, etc.

Other TCs

- Provide information on inputs for the Network and information on the respective regional website.

ISOE TC Pls

4. OTHER TOPICS

Details for the relevant activities

- **Participation to the meetings**
(including Bureau, MB, WGDA and EGs, etc)
- **Nomination to expert groups and follow-up**
- **Organization of the ISOE International / Regional ALARA symposiums**
- **ISOE organized benchmarking visits**
- **New documents and reports**
(including technical reports, information sheets, information exchange activities, etc.)
- **Any other issue not listed above**

Progress

- Agreed in April 2012 during the 2012 Mid-year meeting of the ISOE Bureau and Technical Centers
- All TCs were invited to write their procedures and indicate the completion date for each PI given in the form
 - Consolidated report – June, 2012
 - Draft for Bureau review – July, 2012
 - Proposal at the November 2012 Bureau and Management Board meetings

ISOE TC Pls, MB approval

- **Deliverable schedule**
 - 1 month in advance of the MB meeting to the NEA Secretariat
 - Preparation of consolidated version (Sec)
 - Review and assessment of Bureau to be submitted to the MB
- **Implementation**
 - Management Board agreed on implementation for 2013
 - TCs are asked to submit their first complete report to the NEA Secretariat at the beginning of October 2013

US Pilot Project: Electronic Reporting to ISOE

- Electronic Reporting Module for US Utilities
 - data entry and submission to ISOE program from US utilities
 - use existing US utility systems to collate ISOE data into a central data file
- Goals of US Pilot Project
 - Reduce manual entry and inefficiencies in current process
 - Increase US utility participation in ISOE program by decreasing burden to submit data
 - Increase use of database to highlight other ISOE products useful in the exchange of operational experience
- Effective collaboration between between NEA, CEPN, ORAU, PTI Systems, Duke Energy, and US NRC

Process and Completion

- Combined efforts of NEA IT developers, ORAU, PTI Systems, and Duke Energy
 - PTI Systems and ORAU worked with NEA IT developers on file structure for ISOEDAT
 - PTI Systems worked with Duke Energy Corporate IT department on data mapping for file integration into ISOEDAT
 - NEA IT developers requested beta test of electronic reporting to ISOEDAT
- ‘ISOE Module’ tested by Duke Energy, PTI Systems, and NEA IT developers
 - February/March 2012
- Duke Energy electronically submitted 2011 data
 - April/May 2012
 - Data electronically submitted for all 7 units

Adoption

WGDA: Adoption of the module- technically feasible

ISOE MB agreed

- On the adoption of ISOE electronic reporting
- WGDA requested to develop implementation plan
 - Plan should include processes, completion timeline, and resources (cost estimates and Technical Center responsibilities)
 - Provide updates to MB and seeks approval of specific steps/processes

Expert Group Activities

- Expert Group on Primary Water Chemistry and Source-Term Management (**EGWC**)
 - Established in November 2010
- Expert Group on Occupational Radiation protection in Severe Accident Management and Post-Accident Recovery (**EG-SAM**)
 - Established in May 2011

EG on Water Chemistry and Source-Term Management (EGWC)

- Chair: Alain ROCHER (EDF, France)
- 15 members
 - Utility, authority , TC representatives and EPRI
- Mandate
 - review and analysis of current **knowledge, technology** and **experience** on RP aspects of primary water chemistry and source-term management
 - To collect information and practical experience available in the nuclear industry on addressing operational aspects of primary water chemistry and source-term management
 - To identify factors and aspects which play key roles in achieving good practices
 - Facilitate the dialogue between RP and Chemists

Products and Timeline

- By June 2011: First meeting of the EGWC to identify topics of interest, and develop methodologies for completing its work
- November 2011: Presentation of a draft report for ISOE Management Board and WGDA comment
- May 2012: Progress report to WGDA
- November 2012: Approval of final report by ISOE Management Board
- Meetings
 - June / October 2011
 - February / October 2012

ISOE EGWC

- Draft report “Radiation protection aspects of primary water chemistry and source term management”
 - Introduction of strategies and techniques
 - Radiation field measurement techniques
 - Measurement locations and indices
 - Remediation of contamination during outages
 - Radiation protection outcomes

RADIATION PROTECTION ASPECTS OF PRIMARY WATER CHEMISTRY AND SOURCE TERM MANAGEMENT

PART A - STRATEGIES AND TECHNIQUES

1. BACKGROUND ON RADIATION FIELD GENERATION				
2. MATERIAL ISSUES	PWR	VVER	BWR	PHWR
3. CHEMICAL METHODS				
4. REMEDIATION OF CONTAMINATION DURING OUTAGES				

PART B - RADIATION FIELD MEASUREMENT TECHNIQUES

1. DOSE RATE MEASUREMENT TECHNIQUES
2. GERMANIUM DETECTOR
3. CZT DETECTOR

PART C - MEASUREMENT LOCATIONS AND INDICES

1. DOSE RATE MEASUREMENTS	PWR	VVER	BWR	PHWR
2. GAMMA SPECTROMETRY				

PART D - RADIATION PROTECTION OUTCOMES

PLANT SPECIFIC RESULTS	PWR	VVER	BWR	PHWR
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ISOE EGWC – Draft report (version 6.4)

- Totally- 109 pages document (available at the meeting computer)
- Thanks for strong commitment (member and institutional)
- All reactor types: PWR, BWR, PHWR and VVER
- Still missing chapters (BWR & PHWR) and sub-sections

ISOE MB Decision

- WGDA proposed
 - to extent the mandate for 1 year to complete the report (Videoconference meetings)
- Approved by the ISOE MB
- EGWC meeting- 13&14 Feb meeting

EG on ORP in Severe Accident Management and Post-Accident Recovery (EG-SAM)

- Chair: Mr. Wataru MIZUMACHI (JNES, Japan)
 - **45 members,**
 - 18 countries: 35 from utilities, 8 from authority, 2 non-ISOE members (REAC/TS & RS Com)
- November 2014 final report, Management Board approval
- Regular reporting to the WGDA and ISOE Management Board

ISOE EG-SAM Strategy

- Overarching objectives:
 - Contribute to occupational exposure management (**provide a view on management of high radiation area worker doses**) in Fukushima with the ISOE participants (utility &RA)
 - address the experience of various ISOE utilities with various RP management approaches in severe accidents
- Product: develop a report
 - on best ORP management procedures for proper RP job coverage during severe accident
 - initial response and recovery efforts to identify good RP practices
 - to organise and communicate radiation protection lessons learned from previous reactor accidents
- **Pillar of work:** Collection of data, analysis and reporting

EG-SAM Progress

Work initiated by the ISOE TCs

NATC

Various meetings and collection of necessary data (2011)

ETC

8 February 2012; Kick-off meeting of the ETC sub-group in Prague

- Review of work areas & proposals

1st EG-SAM meeting

- 18-20 April 2012 (Paris, France)
- Attendance; 25 experts from 10 countries
 - to identify topics of interest
 - to develop methodologies for completing its work
 - Country reports (Brazil, Canada, Finland , France, Germany, Japan, Slovak Republic, Spain, Sweden and the US)
 - Work plan

EG-SAM Progress

- 27 September 2012 - Tokyo meeting (informal) in connection with the ISOE Asian ALARA Symposium (Secretariat and TC Heads)
- Current version (5.0) was reviewed
- Proposal:
 - Content of some of the chapters needs adjustment / clarification (resulting also in some changes of the structure)
 - Expectation from the EG-SAM; clarification the expectations on the content of the chapters and re-arrange some sub-chapters
 - Circulation of proposal to be used in drafting

ISOE EG-SAM – Draft report (version 7)

1. Foreword / Executive Summary
2. Introduction / Scope
3. **RP Management and Organization**
4. **RP training and practices related to severe accident management**
5. **Facility configuration and readiness**
(Each reactor type CANDU, PWR, BWR, VVER)
6. **Worker Protection**
7. **Radioactive materials and contamination controls**
8. **Lessons Learned and Example Protective Measures**
9. **Conclusions**
 - ANNEX-1: Radiological Past Lessons Learned
 - ANNEX-2: ISOE Programme
 - ANNEX-3: Members list of the EG-SAM

November meeting

- ISOE MB was informed about group progress
- WGDA proposal
 - To develop an interim (preliminary) report before the end of 2013 (with a general perspective- specific issues)
 - To be used as an input for the Workshop in 2014
 - RP Management and Organization
 - RP training and practices related to severe accident management
 - Facility configuration and readiness
 - Worker Protection
 - Radioactive materials and contamination controls
 - To finalize the report with national experiences in 2014
- Proposal was agreed by the ISOE MB

Work plan (agreed on during the 2nd EG-SAM meeting)

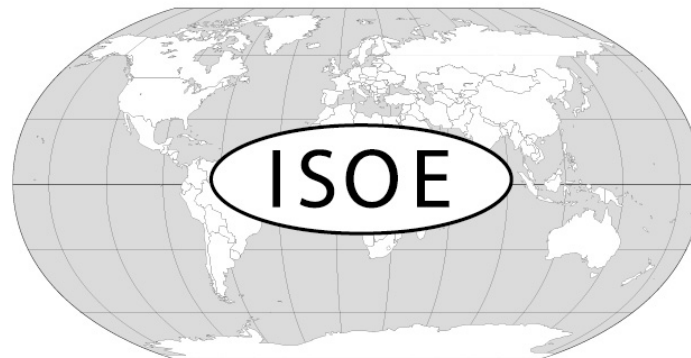
Task	Who	When
Introduction of version 7.0 to <u>EG-SAM</u> members <ul style="list-style-type: none"> • Info on interim report (electronic) and final report • Adopt modification to TOC • Introduce methodology • Indicate drafters and sub-committee members • Add contact list, indicate drafters • Indicate that “<i>send your comments and further inputs to the assigned drafter by the end of January 2013</i>” 	SEC	7 December 2012
Inputs and drafts to the Drafter	All <u>EGSAM</u> members Sub-committee members	End of January 2013
Final version of each chapter to the Sec <ul style="list-style-type: none"> • Intro, scope and early draft of Conclusions by the Sec 	Drafters	8 March 2013
Consolidated version 8.0 to <u>EG-SAM</u> members	SEC	22 March 2013
Progress report to the ISOE Bureau and WGDA	Sec or <u>EGSAM</u> Chair	22-23 April 2013
3 rd meeting		24-25 April 2013

Road Map

- Advance version by April 2013 meeting
- Work plan for final review until Nov 2013
- Submission of Interim Report for WGDA review and for approval to MB in November 2013
- Guidance for organisation of a workshop in Nov 2013 MB meeting

Regular activities

- Symposiums (regional and international)
 - 2013 North American Symposium (NATC, January)
 - 2013 International Symposium (ATC)
 - 2014 European Symposium (ETC, June)
- Benchmarking visits (organised by ETC and NATC)
- Publication policy is under review (April Bureau meeting)



INFORMATION SYSTEM ON OCCUPATIONAL EXPOSURE

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<http://www.oecd-neo.org/jointproj/isoe.html>

<http://www.isoe-network.net>