## **ALARA Self-Evaluation Guide**

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#### **Guide's elaboration framework**

#### Questions from utilities:

- 2005, 2010 : EDF (France) Evaluation of the management of radiation protection and optimisation of radiation protection of each NPP from the whole fleet
- 2013 : Vattenfall (Sweden) Evaluation for Forsmark and Ringhals on optimisation of radiation protection – following notably some questions from the regulatory authority

#### How to:

- Evaluate the relevance / efficiency of ALARA programmes
- Collect elements contributing to demonstrate the implementation of ALARA
- Identify way of progress, new ideas, ...



# **Elaboration process**

- Review of guidelines and good practices published by IAEA, NEA, INPO, EPRI...
- Feedback experience collected within the ISOE community
- ⇒ a list of successful procedures and current good practices that have proved their efficiency to optimize the radiation protection with a strong involvement of the various actors
- A gradation in the evaluation of each topic : 3 to 4 levels
  - Level 1 ensures that minimum ALARA requirements are met
  - The other levels assess the organization more deeply and are more focused on the qualitative and subjective implementation of the ALARA principle
- A proposal of a scoring system to be used to identify the strong or weak areas



# **Topics**

1. On-site RP Organization

2. ALARA Programmes

3. Work Planning and Organization

4. Factors to be addressed in Work Preparation

5. Work Implementation

6. Feed back Experience Management



### 1. On-site RP Organization

- RP Department Organization
- Roles and Responsibilities of the RP Department
  - In the planning and monitoring of unit outage
  - When the unit is in operation.
  - Takes part in the analysis of design and modification of equipment
  - Develops tools, practice and specific programs
- Staff Background and Training
  - Cartography of competences of RP department / Job and Competency Planning
  - Training of RP staff, and other departments (job planners, managers, maintenance,...)
- Audit programme of the RP Department
  - Internal audit and External audit



# 2. ALARA Programmes & Organization

- Existence and content of the ALARA Programme
- Actions and objectives included in the ALARA Programme
- ALARA structures
  - ALARA Committee (members, role, follow-up of decisions, ...)
  - Other ALARA structures or organization
- Distribution of ALARA responsibilities
  - Plant senior management
  - Department managers
  - Radiation Protection Department manager
  - Job Planners/Engineers
  - Exposed workers
  - Contractors



# 3. Work Planning & Organization

- Work Planning Structure & Organization
- ALARA Planning
  - Tools to be used by job planners
  - Dosimetric assessment
  - Job ALARA Analysis / Use of ALARA Check-lists\*
- Plant Outage Schedule
- Training of Workers
  - Mock-up training
  - Just in time training
- Involvement of contractors in the planning process



#### 4. Factors to be addressed in Work Preparation

- Source Term Management
  - Identification and management of source term
  - Hot Spots Management
  - Temporary Shieldings Management
- Actions to avoid "unnecessary" dose
  - Transit Dose Reduction
  - Reworks Reduction
- Actions to reduce the accumulation of low doses
  - Identification of low dose jobs
  - Specific work on these jobs to supress themor reduce dose



# 5. Work Implementation

#### RP Briefing before starting work

- Pre-job Briefing
- Outage Daily Meetings

#### Job Monitoring

- RWP including RP / ALARA Requirements, RP Hold points
- Involvement of RP department for monitoring specific jobs
- Use of EPD Dose / Dose rate alarms

#### Collecting Feed-back

- Post-job briefing / reviews
- Recording system for Post-job reports
- Collection/Analysis of RP incident reports



#### 6. Feed-Back Experience Management

- Internal feed-back analysis programme
- External feedback collection and analysis
- Sharing information through all departments
- Active participation to national / international meetings, experience exchange networks,...

# **Example of Topic evaluation: RP Department Roles and Responsibilities**

Level 1

Level 2

Level 3

Level 4

The RP
Department has
dedicated
missions in the
planning and
monitoring of unit
outage and when
the unit is in
operation.

The role and missions of the RP Department is clearly documented.

A dedicated team of the RP Department takes part in the planning, realization and feedback analysis of the unit outage. RP Department takes part in the analysis of design and modification of equipment that will be installed during an outage.

The RP Department develops tools, practice and specific programs for the management of exposure. This work is shared with the other departments of the unit.

Some workers of the RP Department are specialized for specific jobs/equipment (e.g. SG, reactor vessel, primary circuit valves, ...).

Relationship with the other Departments and services (Maintenance, Planning, etc.) are regular and good.

Some activities of the RP Department come from intercomparison with other units/utilities or benchmarking.

Score ... / 10

Score ... / 5

Score .../3

Score ... / 2



#### How to use such evaluation Guide?

#### Self-Evaluation for a plant

- Select topics to be addressed (all or only part of them)
- A Team Work: Involvement of relevant Work Departments (not only RP Department) as well as workers
- Going through the guide's question facilitates the starting of discussion / exchange on ALARA programmes, actions,...
- Favour identification of new organizations, techniques, ...
- Sharing common objectives

#### Benchmarking

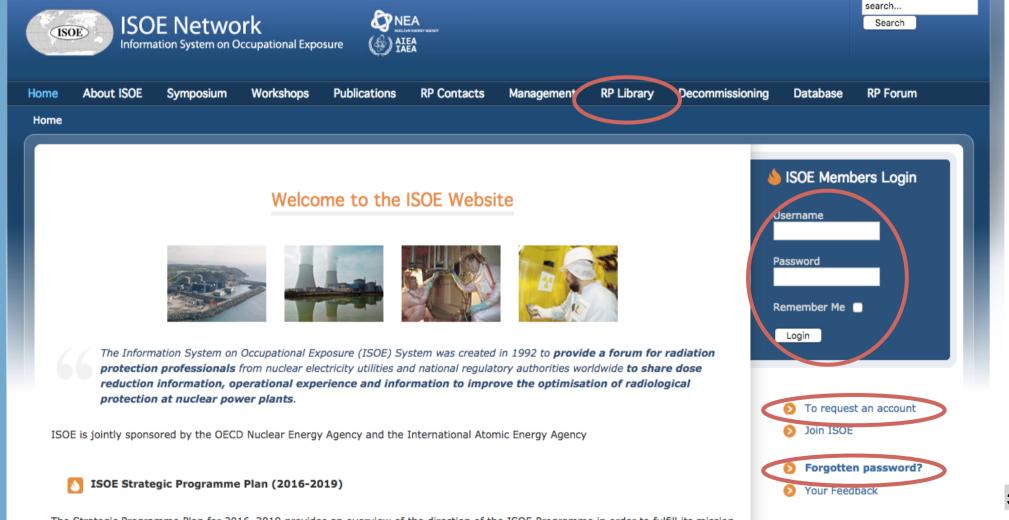
- Eg. In Sweden NPPs (Forsmark, Ringhals) invited RPMs from Sizewell (UK) and Biblis (Germany) to contribute to the evaluation of their ALARA Programmes
- Preparation using the guide => Remind + broadcast ALARA issues among several work sections
- Discussion around some topics with the plant personnel (senior management, supervisors, RP staf, job planners, maintenance, contractors,..),
- Spot and valorise good practices and formulate recommendation



#### Where to find it?

ISOE Website: www.isoe-network.net

- -> Login (this is a document for ISOE Members)
- -> go to RP Library

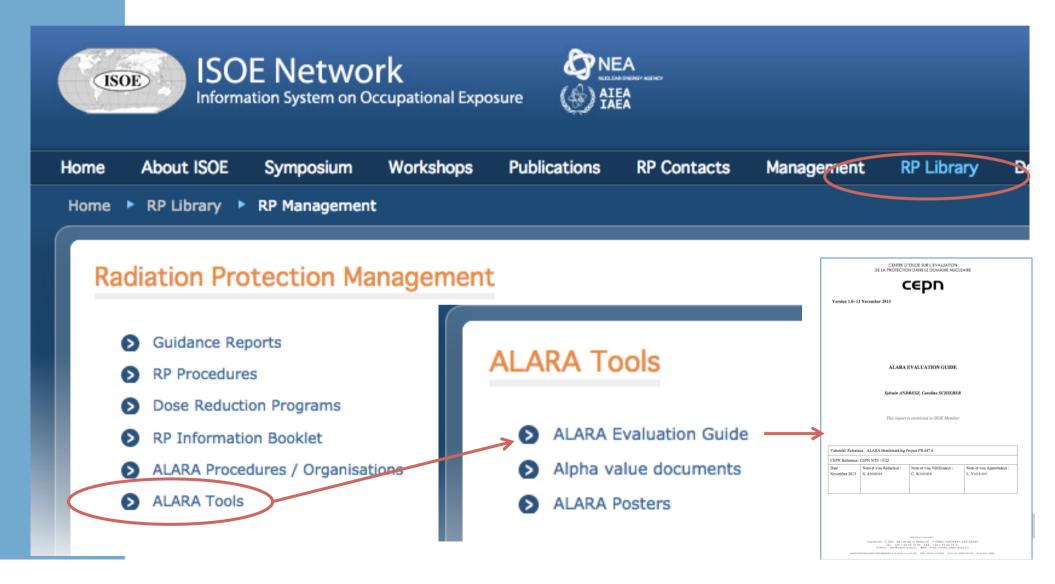




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-> go to RP Library > Radiation Protection management > ALARA tools





#### **Conclusions**

#### ALARA:

- Should not be seen as obligation of Result, but as an obligation of Means
- Collective Radiation Exposure is by far not the only indicator of good ALARA practices and organization
- We usually say that ALARA is a "way of thinking" of a whole plant staff, but dissemination of such an ALARA culture among necessitates also specific organization, procedures, practices aiming at involving the relevant stakeholders into the ALARA process
- This guide should be seen as a tool to help answer the question:
  - "Did we do all what is possible to keep exposures and the number of persons exposed As Low As Reasonably Achievable?"



# THANK YOU FOR YOUR ATTENTION

**ANY QUESTIONS?**