

ALARA Self-Evaluation Guide

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- **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, ...**

- **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

**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

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

* *INPO Check-lists for reduction of collective exposures are provided in the guide*

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 suppress them or 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

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.**

Score ... / 10

Level 2

A dedicated team of the RP Department takes part in the **planning, realization and feedback analysis of the unit outage.**

Score ... / 5

Level 3

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, ...).

Score ... / 3

Level 4

Relationship with the other Departments and services (Maintenance, Planning, etc.) are **regular and good.** Some activities of the RP Department come from **inter-comparison with other units/utilities or benchmarking.**

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

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Welcome to the ISOE Website

*The Information System on Occupational Exposure (ISOE) System was created in 1992 to **provide a forum for radiation protection professionals** from nuclear electricity utilities and national regulatory authorities worldwide to **share dose reduction information, operational experience and information to improve the optimisation of radiological protection at nuclear power plants.***

ISOE is jointly sponsored by the OECD Nuclear Energy Agency and the International Atomic Energy Agency

ISOE Strategic Programme Plan (2016-2019)

The Strategic Programme Plan for 2016-2019 provides an overview of the direction of the ISOE Programme in order to fulfill its mission

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Where to find it?

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The screenshot shows the ISOE Network website interface. At the top, there are logos for ISOE, NEA (Nuclear Energy Agency), AIEA, and IAEA. Below the logos is a navigation menu with items: Home, About ISOE, Symposium, Workshops, Publications, RP Contacts, Management, and RP Library (circled in red). A breadcrumb trail below the menu reads: Home > RP Library > RP Management. The main content area is titled "Radiation Protection Management" and contains a list of links: Guidance Reports, RP Procedures, Dose Reduction Programs, RP Information Booklet, ALARA Procedures / Organisations, and ALARA Tools (circled in red). A red arrow points from the circled "ALARA Tools" link to a secondary menu titled "ALARA Tools" which includes: ALARA Evaluation Guide (circled in red), Alpha value documents, and ALARA Posters. Another red arrow points from the circled "ALARA Evaluation Guide" link to a document preview on the right. The document preview is titled "ALARA EVALUATION GUIDE" and includes the CEPN logo, version information (Version 1.0- 12 November 2013), author information (Syvain ANDRESZ, Caroline SCHIEBER), and a table with reference and date details.

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- > RP Information Booklet
- > ALARA Procedures / Organisations
- > **ALARA Tools**

ALARA Tools

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ALARA EVALUATION GUIDE

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This report is restricted to ISOE Member

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- **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 ?