

ALARA Self-Evaluation Guide

Caroline SCHIEBER, Sylvain ANDRESZ

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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

**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

* *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

-> Login (this is a document for ISOE Members)

-> go to RP Library

The screenshot shows the ISOE Network website interface. At the top, there is a search bar and navigation links: Home, About ISOE, Symposium, Workshops, Publications, RP Contacts, Management, **RP Library** (circled in red), Decommissioning, Database, and RP Forum. Below the navigation is a 'Home' section with a 'Welcome to the ISOE Website' heading and four images related to nuclear energy. A quote states: "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." Below this, it mentions ISOE is jointly sponsored by the OECD Nuclear Energy Agency and the International Atomic Energy Agency. At the bottom, there is a link to the 'ISOE Strategic Programme Plan (2016-2019)'. On the right side, there is an 'ISOE Members Login' form with fields for Username, Password, and a 'Remember Me' checkbox. The 'Login' button and links for 'To request an account', 'Join ISOE', 'Forgotten password?', and 'Your Feedback' are also circled in red.

Where to find it?

ISOE Website: www.isoe-network.net

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

The screenshot shows the ISOE Network website interface. At the top, there are logos for ISOE, NEA (Nuclear Energy Agency), ATEA, and IAEA. The main navigation bar includes links for Home, About ISOE, Symposium, Workshops, Publications, RP Contacts, Management, and RP Library (which is circled in red). Below this, a breadcrumb trail 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 'ALARA Tools' to a sub-section titled 'ALARA Tools' which lists: ALARA Evaluation Guide (circled in red), Alpha value documents, and ALARA Posters. Another red arrow points from 'ALARA Evaluation Guide' 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), authors (Sylvain ANDRESZ, Caroline SCHIEBER), and a table with reference and date information.

Radiation Protection Management

- Guidance Reports
- RP Procedures
- Dose Reduction Programs
- RP Information Booklet
- ALARA Procedures / Organisations
- ALARA Tools**

ALARA Tools

- ALARA Evaluation Guide**
- Alpha value documents
- ALARA Posters

ALARA EVALUATION GUIDE

Version 1.0- 12 November 2013

Sylvain ANDRESZ, Caroline SCHIEBER

This report is restricted to ISOE Member

Vattenfall Reference : ALARA Benchmarking Project PR.647.6			
CEPN Reference: CEPN NTI 13/22			
Date	Num et visa Rédacteur :	Num et visa Vérificateur :	Num et visa Approuvateur :
November 2013	S. ANDRESZ	C. SCHIEBER	L. VALLANT

- **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 ?