

Practical Guides for the Integration of Radiation Protection from the Planning Stage of Jobs to the Realization and Feedback Experience

Risk Analysis
Optimisation
Follow up

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CHANGER L'ÉNERGIE ENSEMBLE

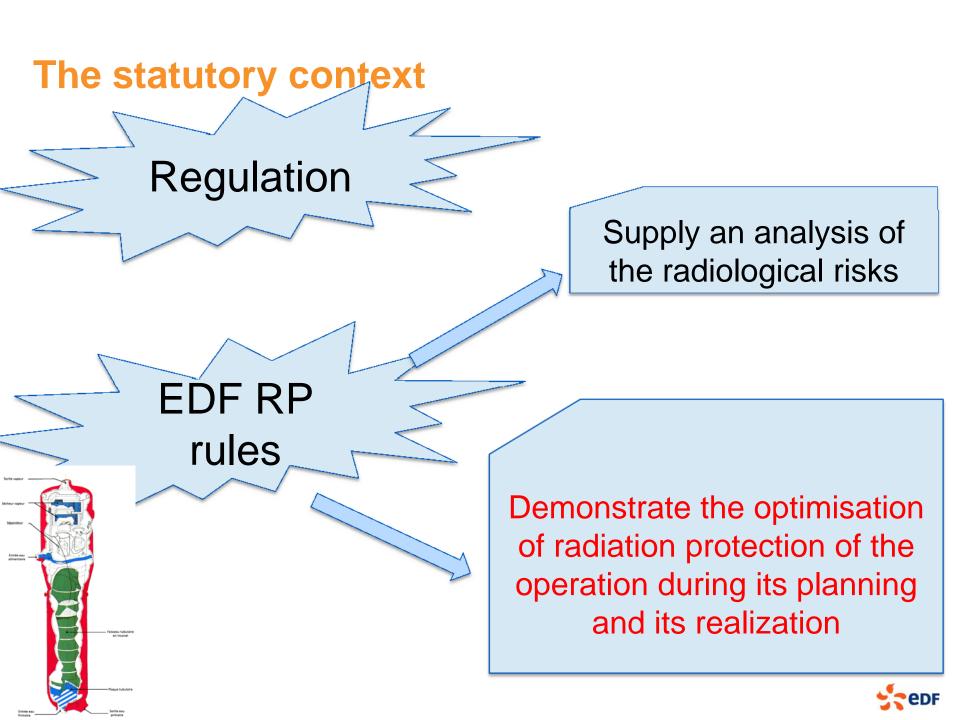
Conception of an intervention

A complex activity:

- Technical choices
- Design of tools
- Control of the costs
- ALARA implementation
- Justification of the ALARA implementation
- Follow-up planning
- Realisation on sites
- Follow-up
- Feedback
- **)** ...







It is needed to help EDF engineering Dept and Contractors

To facilitate the respect for these requirements, EDF also !!! These 3 guides come from a common reflection proposes 3 practical guides ation of the on of radiation notection at workplace Radiological

Guide for the RP follow-up of modification and maintenance operations



Scope of the three guides (1)

Phase

Document

Practical guide

Review of the request

Work planning

Site adaptation

Follow up

Feedback experience

Analysis of the jobs:

→ Radiological hazards

→ RP optimisation demonstration

RP and ALARA procedure

RP assessment

Analysis of radiologi cal risks "guide"

"ALARA
" guide

"RP Follow-up" guide

Including follow-up procedure

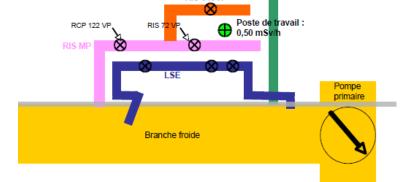


Scope of the three guides (2)

- Conceived for any operation of modification or national maintenance taking place in a controlled area or a supervised area (including radiographic NDT)
- Applicable to other types of operations: demolitions and local maintenance operations performed by the plant

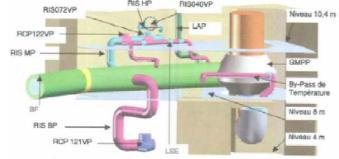
Adapted more particularly to operations with a strong radiological stake: the proposed measures can be modulated according to the Local R411, niveau 10,5 m

radiological stake.





Structure of the guides



- The 3 guides are structured in the same way
- Theoretical part: description of the proposed methodology
 - Objective
 - Data needed
 - Data produced

- Practical part:
 - Datasheets
 - Examples of application
 - Appendices presenting models of documents



Guide on "Analysis of Radiological risks"

- Objectives:
 - Help to implement an analysis of the radiological risks of an operation
 - Supply general and practical information related to the radiological risks and the associated parades

Approach proposed for the analysis of risks:

- → Identification of the risks and the levels of risks
- Consultation and use of the data sheets of risks:

"Mother" datasheets: external exposure, internal exposure, contamination

"Daughter" datasheets: specific risks connected to the general risks described in mother "datasheets" Implementation of the recommended technical and organizational parades



Data Sheets

External exposure

Neutron exposure

Hand, feet, skin exposure

> Impact on the zoning of the RCA

Internal exposure

Internal exposure with alpha emitters

Contamination

Scattering of the contamination

Use of non specific tools in the RCA

Use of contaminated tools out of the RCA

Contamination of containers



Methodological guide for the ALARA implementation

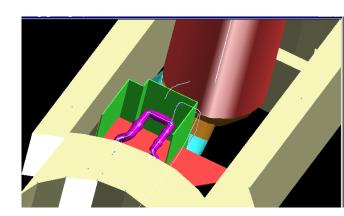
- Objectives:
- Supply a methodology allowing to structure and to formalize the optimisation of radiation protection during the conception of the operations
- Supply datasheets relative to the implementation of actions to reduce doses: reduction / control of dose rates, reduction / control of times of exposure, control of the coefficient of exposure.



ALARA Implementation

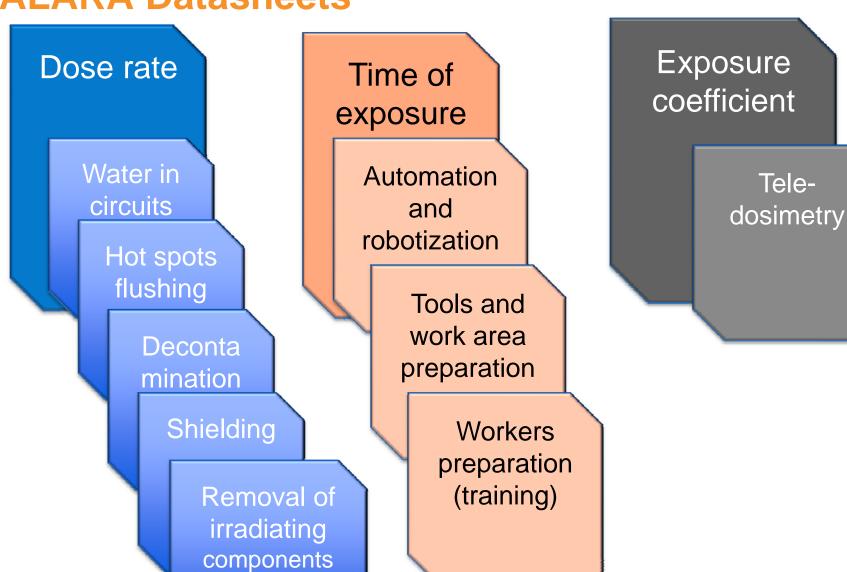
Approach proposed for the analysis of optimisation:

- Identification of the major constituents of the dose
- Identification of potential actions to reduce doses (cf. datasheets)
- Evaluation of the impact of the actions
- Selection of the actions
- Sensitivity analysis





ALARA Datasheets





Guide for follow-up radiation protection

- Objective:
- Help in the elaboration up of operations of p

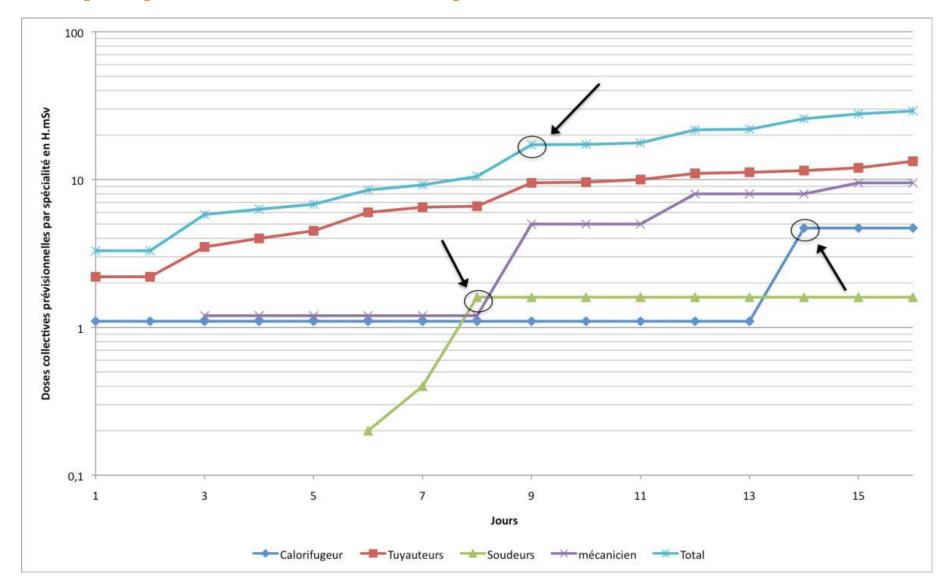
Steps proposed for the RP monitoring:

- → Definition of the organitoring during the co
 - → Modalities to mo
- individual dosimetry, the RP
- →Adaptation of the defi/
- →RP Follow up
- → Feed back analysis

- → Implementation of the RP actions
- → Recording of the radiological conditions and the dosimetric data
- → Detection of RP events
- → Recording of the data needed to benefit from the feedback experience of the operation



To prepare the follow-up of doses





Objectives and main players during the RP followup

Conception

Define the organisation and the modalities of RP monitoring

Objective

Contractors

Utility

*Project manager, *RP expert

Engineering RP department

Adaptation

Adaptation of the requirements to the local RP Organisation

*Project manager, *RP on site

*Site technical responsible, *RP Dept, *ALARA Committee

On site Follow up

*Implementation of RP actions *Doses and dose rates follow up *Feedback data collection

RP on site

*Site Technical responsible, *RP Dept,

Feedback analysis

*Dose analysis model validation *Identification of good practices *Update of technical documents

*Project manager, *RP on site, *RP expert

*Site Technical responsible, *RP Dept, *Engineering RP department



Main users of the three guides

Responsible staff for the design and planning of operations

Job planning responsible staff

Radiation protection staff

Within EDF (corporate level, engineering units, plants) and for contractors



Usefulness of the guides

→ Synthesis of applicable RP requirements defined by EDF, capitalization of know-how and feedback experiences

→ Practical help to:

- Identify the radiological risks of an operation
- Identify and select the actions of RP optimisation to set up
- Plan the RP monitoring of operations and implement it
- Collect elements of feedback experience
- → Homogenisation and harmonization:
 - Of contents of files used by EDF contractors
 - Of practices on the field



Pre job briefing example

CAUSERIE RADIOPROTECTION

Date :

Basi	C	R	P
ru	le	S	

Expected radiological conditions

Optimisation actions

Dose prediction

Contaminati on risk

High	dose
rate	area
acc	ess

omentaire

Olution

Lieu:		
Thème(s) abordé(s): Règles de base en radioprotection Conditions radiologiques attendues Mesures d'optimisation générales Prévisionnels dosimétriques Risque de contamination Conditions d'accès en ZO/ZR EPI	Tir radiographique Alarmes dosimètres Seuil d'arrêt de l'opération Alarmes des dosimètres Retour d'expérience Bonnes pratiques Autres:	0 0 0 0
Anin'ateur(s):	Visa(s):	
Liste d participants :		

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Protective	
suits)

Radio NDT

EPD alarms

Job stop criteria

Feedback experience

Good practices



Contributors

