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: Plant manager units 3 and 4

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MANAGEMENT OF RADIOLOGICAL PROTECTION
AND RELATIONS WITH SERVICE-PROVIDERS
an endless story...

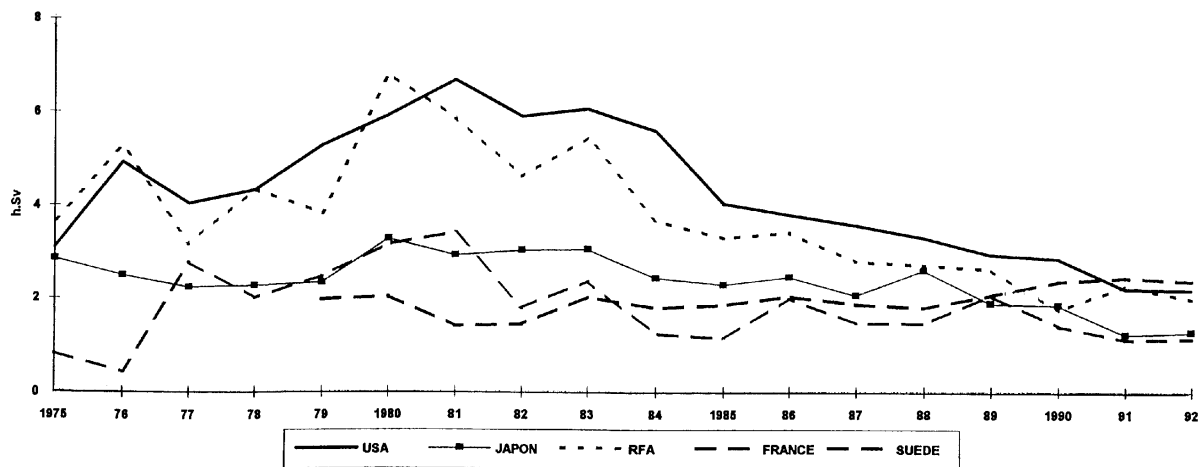
ELECTRICITE DE FRANCE
CNPE DU BLAYAIS
BP 27
F - 33820 BRAUD ET SAINT LOUIS

2nd EC/ISOE WORKSHOP
on
OCCUPATIONAL EXPOSURE
MANAGEMENT AT NPPS

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1. The situation at the beginning of the 90's

At the beginning of the 90's, EDF became more aware of the importance of radiation risks. Units (there are now 58 - 34 x 900 MW, 20 x 1300 MW and 4 x 1400 MW) that were started at the beginning of the 80's showed very good results in radiological protection : EDF was one of the best in the world as shown in this diagram :



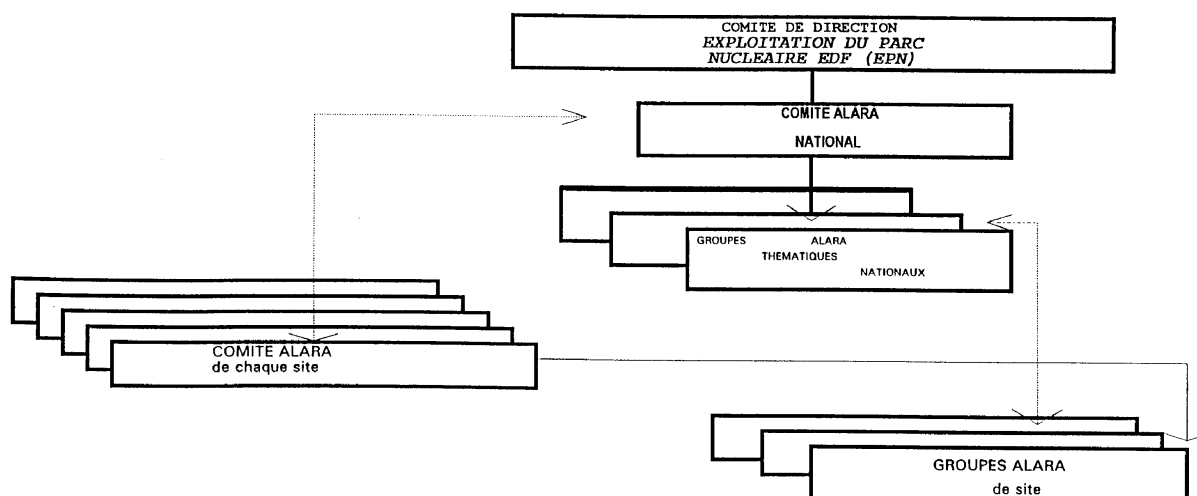
Nothing particular was done in France while at the same time, other companies doubled their efforts to limit collective dosimetry. In 1992 international comparison was very bad for us : so, we decided to adopt the ALARA (As Low As Reasonably Achievable) concept in all the French nuclear Units.

2. An organization was decided

Radiological protection was then considered as a major risk for the company, at the same level as nuclear safety, conventional safety, and production availability. This is why the national management fixed goals and gave the means to reach them. It was necessary :

- to give to all contractors the same level of dosimetric protection, whatever their company
- to join the best world utilities in collective dose received during the exploitation of reactors

In 1992 the result was 2.44 mSv. The objective was by 1995 to obtain a collective dosimetry inferior to 1.6 mSv per unit per year. Each unit Director was committed by the Directorate of EDF to its dosimetry results. Collective dosimetry became one of the main criteria of annual management results. It is also one of the criteria taken into account in the annual profit-sharing bonus scheme for the personnel. The diagram below shows the organization introduced in 1992



3. Actions at the Blayais

To meet this objective, in 1993 the Blayais NPP set up an ALARA Committee. This committee is lead by a member of the site management (the deputy manager of the NPP) and by the radiological protection staff.

The Committee is composed of :

- all departmental heads (maintenance and production),
- a company medical occupational doctor,
- a member of the site Communication staff.

At the beginning, representatives of the main contractors were also involved in the committee. This practice was quickly abandoned because of difficulties in sharing problems with the different contractors. In fact, all the contractors have now been integrated into the specific working groups .

The ALARA Committee has the following objectives :

- fix set up the annual objectives of the site,
- select the important actions,
- undertake the main actions,
- allocate necessary means (budget),
- dappoint site representatives in national groups.

For each important area, one local working group is designated. These groups report to the ALARA Committee. Their objective is to propose a methodology and an operative mode to bring the dose to a low level ; the lowest in the 'All the French nuclear Units'. They are composed of a leader, motivated operational .employees, representatives of the radiological protection staff as well as contractors involved in the workssite.

The main themes chosen by the Blayais NPP as objectives for the working groups are the following (the percentage in brackets represents the dosimetry during 1993's outages) :

- opening / closing vessel (12.2 %),
- valves and fitting (9.6%),
- steam generators (18.3%),
- miscellaneous : heat protection, scaffoldings, cleaning, ... (27.8%),
- store area during outage,
- planning,
- activities during operation (created in 1996).

Actions are decided from the results of experience feedback, suggestions from national groups as well as ergonomic studies. Improvements concern not only material adaptations (modifications, tools, ...) but also new procedures. For example, the work "opening / closing of the vessel" is devided into 47 " work phases " ; the dosimetry objective of each phase forms part of the contract with the company carrying out the work so that the total of these different objectives corresponds to the global objective for the jobworksite as that fixed by the Radiological Protection Section (SRP).

During the progress of the job, the dosimetry monitoring and the supervision are done by the SRP who also give support and advice to those carrying out the work

The dosimetry results of each contractor are examined during the annual contractor's evaluation. They are taken into account as one criterion for the selection of the contractor for future work. Also, in the power plant, each section has to respect dosimetry objectives (they are included in the management contracts). These results are taken into account in the calculation of the managerial staff's " performance and involvement bonuses" .

Specifically, these groups are responsible for a certain number of actions. The main ones are :

Vessel group :

years	modifications	cost in thousand French franc
1998	false cover flange protection	100
1997	modification of the false cover	300
	tools for putting on and taking off stud guides	285
1995	modification of the auxiliary bridge	20
	pipe protection of thermocouples	4

Steam Generator (SG) group :

years	modifications	cost in thousand French franc
1998	biological protections for temperature by-pass valves	80
1997	biological protections of SG level 11m	207
	biological shipping container	21
	modification of thermal insulation	276
1996	SAT modification unit 4	60
	addition of electric boxes BR 4	200
	floor grating modification level 8m	180
	purchase of lead casks	30
	sealed transport containers	20
	dosimeter	12
1995	SAT modification units 1 and 2	120
1994	SAT modification unit 3	60

Valves group :

years	modifications	cost in thousand French franc
1998	hydraulic tools for tightening and loosening no return valves	400
1997	cordless phone system	55
1996	valves workshop management	200
	technical assistance	335
1995	ergonomic study	120
	technical assistance	350
	special tools	75
	hydraulic wrenches	72
	cordless phone system	48
	special carriage for valves	35
1994	RRA special tools	80

Store area group :

years	modifications	cost in thousand French franc
1996	valves	≈ 400
1995	valves	≈ 400

Servitude group :

year	modifications	cost in thousand French franc
2000	equipment for radiological cleanness	100
	biological protections	154
1999	rapid assembly bridges	83
	biological protections	170
1998	phonic connections	40
	rapid assembly bridges	27
	RPN nozzle protections	30
	biological protections	300
1997	rapid assembly scaffolding	150
	lead	50
	ventilation hood for mechanical workshops	51
1995	biological protection for hot change room	11
	biological wall repairing	32
	biological protection modification	50
	polishing of trenches BK2	52
	lead	100
1994	filtration modification	40
	biological brick walls	16
	biological protections	130
	purification and decontamination	32
	pit and sump decontamination	28
	lead casks	17
	rapid assembly scaffolding	56

thermal insulation group :

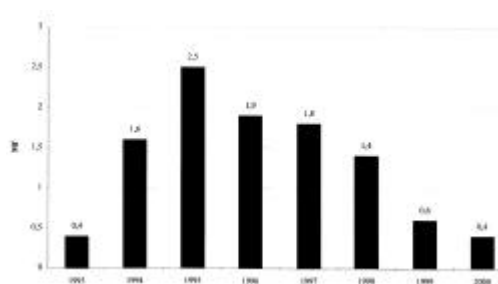
years	modifications	cost in thousand French franc
1997	thermal insulation modifications (RRA, ARE and RCV)	207
1998	thermal insulation modifications (ARE, RRA)	210
1999	thermal insulation modifications (ARE, ASG and RCP)	360

Others actions :

years	modifications	cost in thousand French franc
1993	RPE modifications units 3 and 4	400
1994	RPE modifications units 3 and 4	1100
1995	RPE modifications units 1, 3 and 4	900
1996	RPE modifications units 2, 3 and 4	500
1997	RPE modifications units 3 and 4	250
1998	RPE modifications units 3 and 4	200
2000	RPE modifications unit 2	100

4. The global cost

The global sum committed for the reduction of the dosimetry is therefore approximately 11 MFF distribute over 8 years.



5. Competition and Involvement of contractors

We are now and will be in the future facing more and more challenges, particularly the necessary reduction of costs due to the « deregulated market ». In order to comply with the industry requirements, the contractors must also reduce their costs.

This is why in 1997, we created an association of the main service providers working on the site, the ICG (Inter Company Group, GIE in French...), whose tasks are to improve safety, quality and radiation protection security for all service providers. In fact, the Blayais NPP made the contractors group their forces together in order to improve safety, quality, RP,...

The ICG works directly with the Plant staff: a lot of audits in the field, accident analysis, regulatory improvement... are provided. Several training programs have already been created for contractors: quality / safety, radiological protection, valves, ...

Contractors are now sharing their own staff in order to reduce the costs.

This seems to be the right way.

6. The end of the story

No, the story is not finished yet... As the next diagram shown, in 1998, the Parc still has the worst results in radiological protection. The level, with 1,25 mSv has decreased but more efforts have to be made to reach our first objective: to be the best in the world. So, we are now working on new methods, organisations,...

See you in ten years...

INTERNATIONNAL COMPARAISON COLLECTIVE DOSE PER REACTOR

