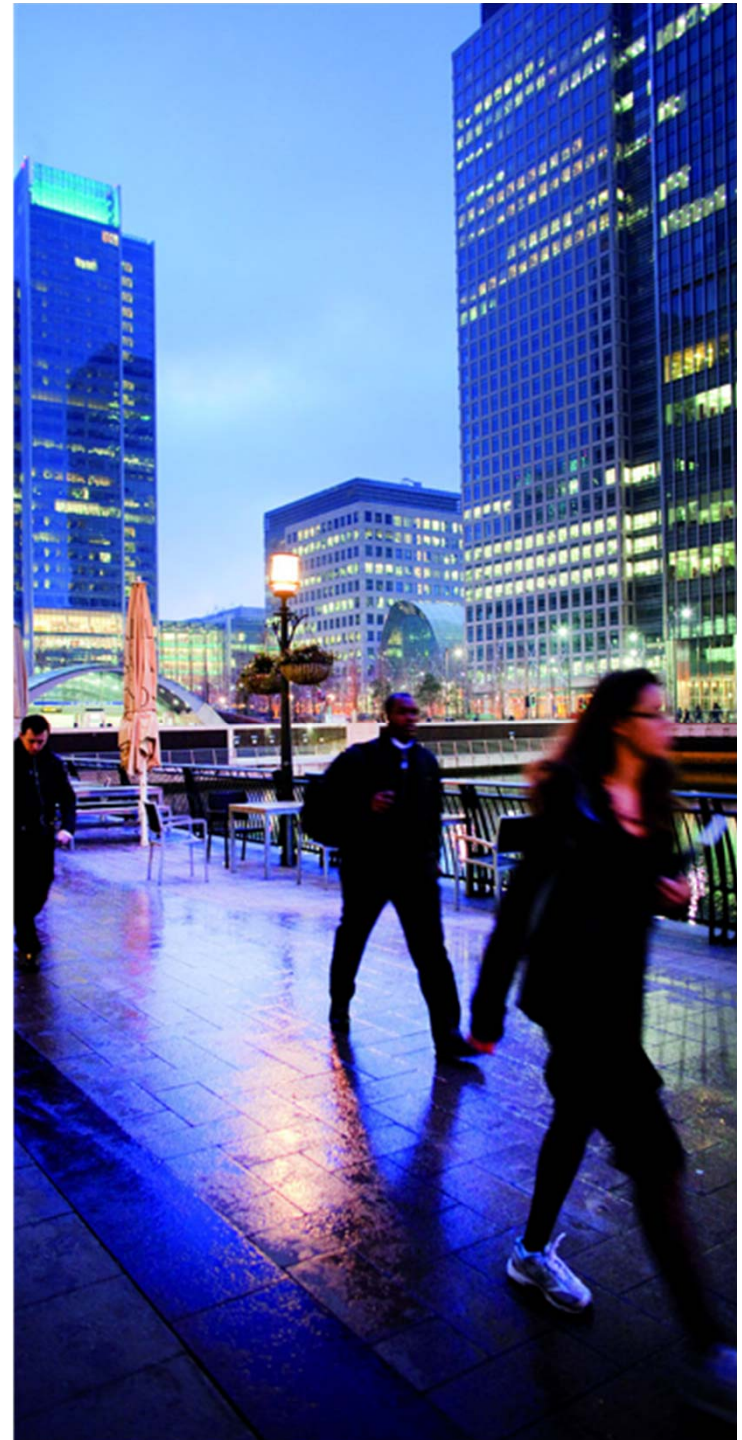




How to integrate the « Humans factors » within a reviewing project of the HP training for outside workers?

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SUMMARY

- 1. Context**
- 2. What does it mean to integrate HF within the design of a training program?**
- 3. The evolutions of the training design**
- 4. Conclusions**

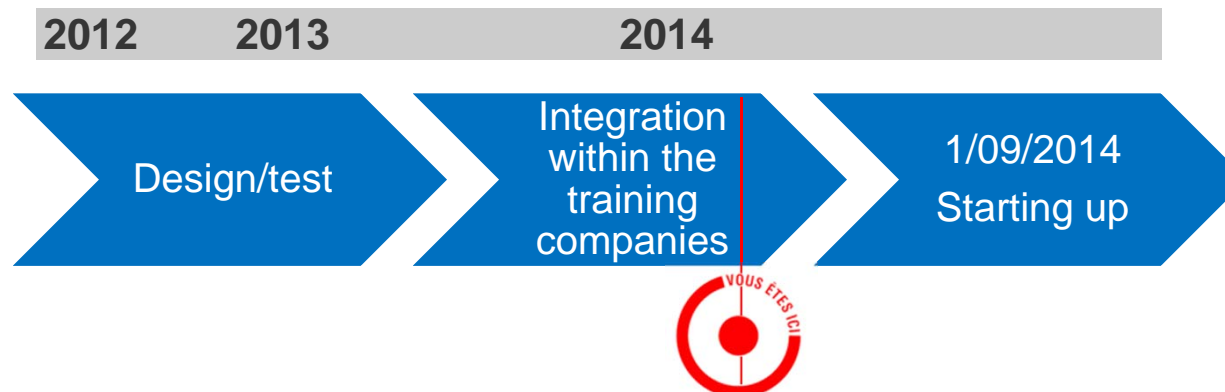
Context : a new program training to face EDF challenges

■ CONTEXT

- Renewal of the outside workers
- Feedback process indicates that training can be improved : the meaning of the rules must be improved
- Future big program of NPP revision
- Strengthening of regulatory expectations

CHALLENGES : to improve the workers practices & behaviors, in risk prevention to contribute to a nuclear sector which is exemplary and socially responsible

A TEAM PROJECT IS ORGANISED TO FACE THE CHALLENGE



Context : the complexity of the project

■ Some facts

- The training program relates to “safety topics”:
 - radiation-protection,
 - classic safety
 - industrial safety
 - environment
 - fire
- 23 000 **outside workers** with different technical jobs
- 21 000 outside workers operating in radiological areas
- In 2013, 6000 outside workers are trained
- 12 outside **training companies**
- 250 trainers



**Stakeholders
involvement**



**Operational needs &
Constraints and limits
collected : compromise**

WHO DO WE NEED TO TRAIN?

Outside workers with 2 levels of mission: the classic worker and the « job leader », the one in charge of « safety » missions (control actions and son...).

We go from a “cumulative” program to a “training process”

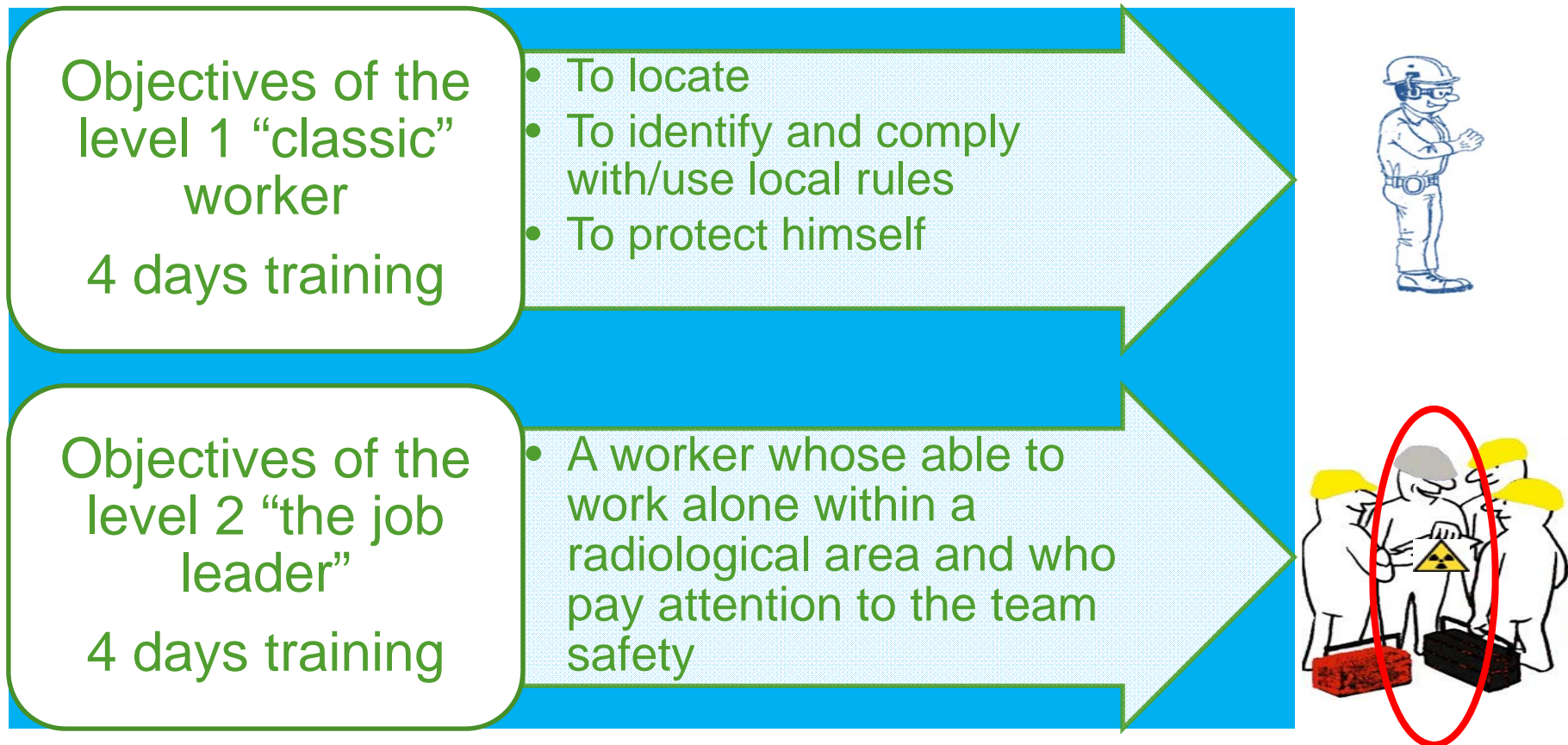
Level 1 :
classic
worker



Level 2 :
Job leader

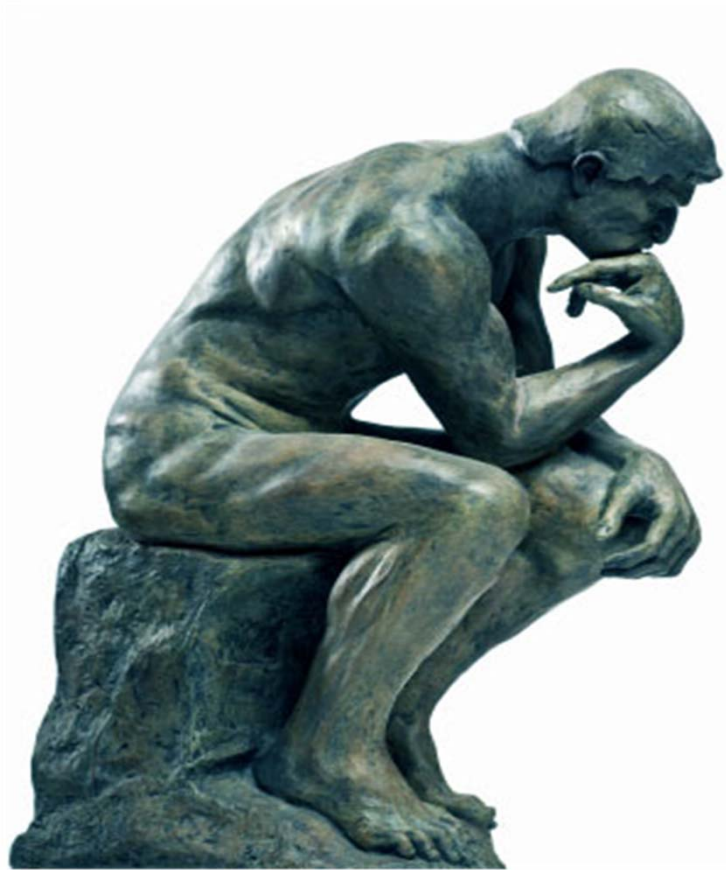


THE TWO LEVELS OF TRAINING



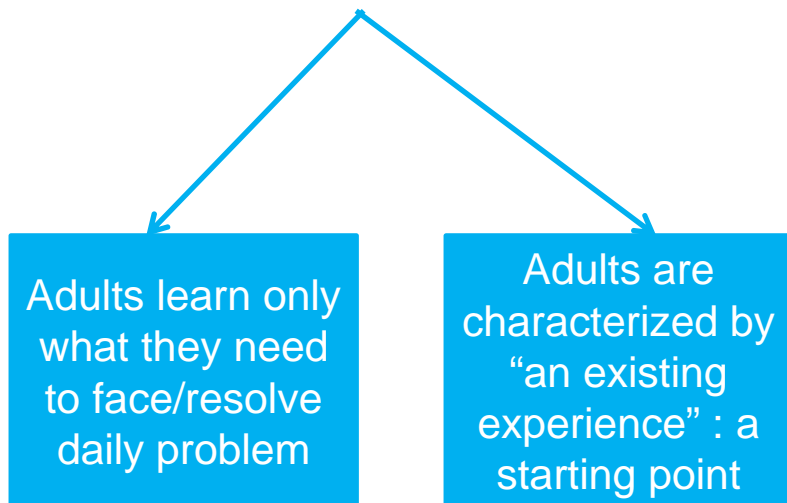
Notice : additional and specific trainings are provided to outside working relating to specific safety equipments

WHAT DOES 'IT MEAN TO INTEGRATE HUMAN FACTORS WITHIN THE DESIGN OF TRAINING ?



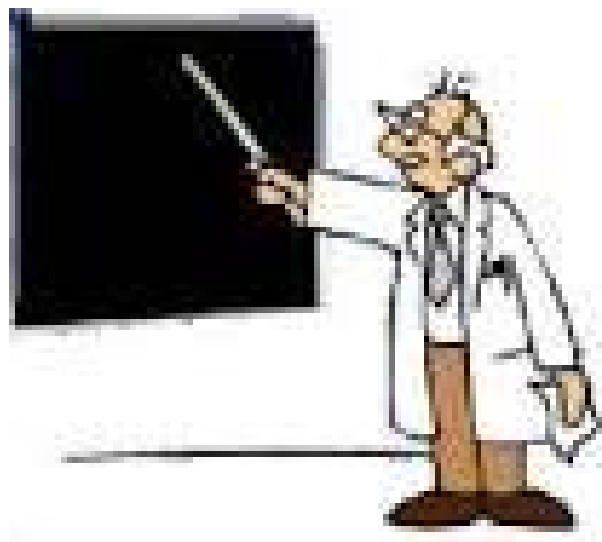
THE « IDEA » IS EASY:

⇒ CONSIDER THE RESULTS AND THE KNOWLEDGE FROM EDUCATIONAL SCIENCES TO ADAPT AND TRANSFORM THE TRAINING DESIGN



EVOLUTION OF THE PARADIGM ABOUT THE TRAINING

The blackboard model



The tools box model



60 % of the training are practical
: training platform; studies case,
resolution problem exercises,...

WHAT WE TRY TO DO ?

A fundamental switch to operate : the openness of the design training process

- The expert model to the « expert – Professional model »



The real and daily work becomes one filter (among others) to select the theoretical knowledge to integrate/keep in the training program : is that knowledge linked to a practical action?

EVOLUTION OF THE MEANING OF THE RULE : FROM CONSTRAINT TO A “TOOL”

Without an operational meaning, rules remains theoretical and abstract things, but with a work meaning, they become useful



Guideline for the designers & trainers : the operational well-founded of the rules must be explained in terms of individual, collective safety, short and long term issues

EVOLUTION : FROM AN ACADEMIC DESIGN TO A REAL WORK DESIGN

Educational science statement: people learn what they need to work safely \Rightarrow the safety rules/ expectancies must be linked to the work to be more used (and not only respect)

\Rightarrow THE DESIGNER HAVE TO INTRODUCE

- **POINT OF “WORK REFERENCE”** : WHEN TO USE THE RULE (BEFORE, DURING OR AFTER THE TECHNICAL WORK) AND IN WHICH SITUATIONS, HOW TO USE IT ...

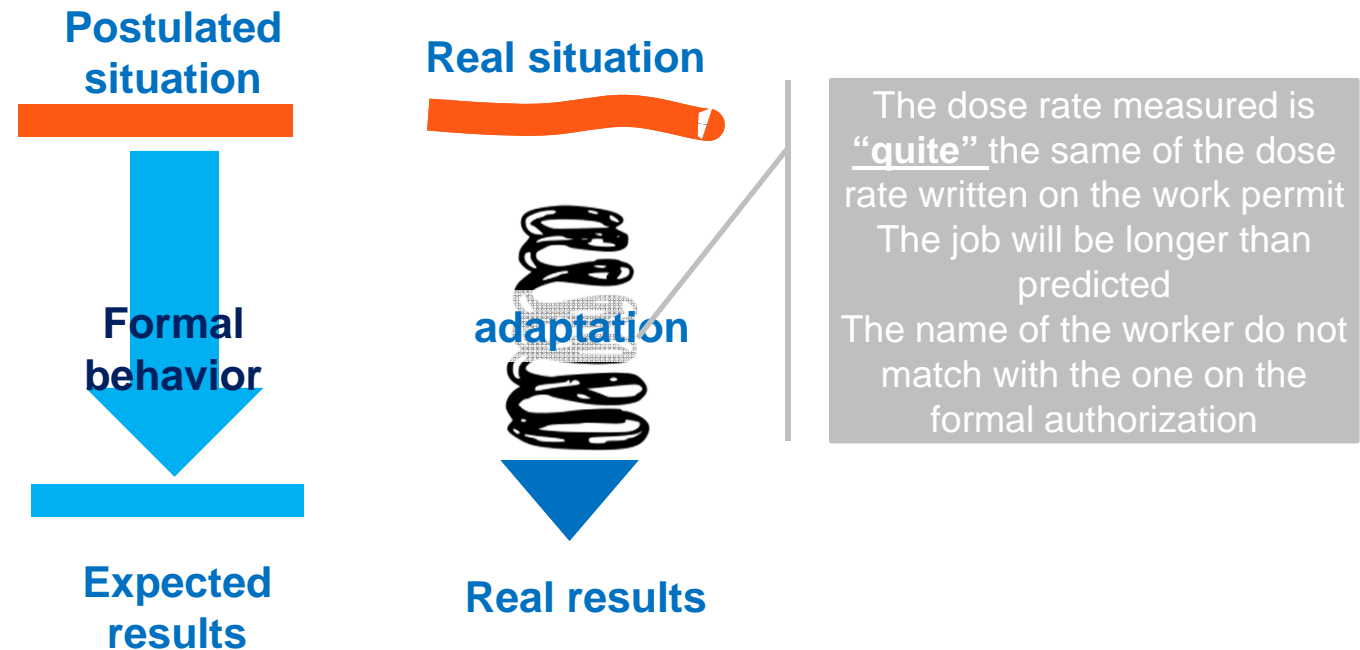
WHAT ABOUT A KNOWLEDGE WITHOUT DIRECT LINK WITH WORK ?

Irradiation risk or external exposition ?
Different kinds of fire extinguisher or just “in case of fire, call the 18”?

OBVIOUS EXERCISE OR LONG DEBATE?



EVOLUTION : THE “ABNORMAL SITUATION”, A NEW COMPONENT OF THE TRAINING



We aim to develop a global behavior of “questioning attitude” and communication practices to avoid some drifts become a cause of incident : storytelling, case studies, practical training to abnormal situations, and so on.

CONCLUSIONS

1. The postulate : the design should be adapt as much as possible to the trainees and their work (and not the trainees must adjust to the training level) : a design based on the real job, the sense of the rule as guide, the abnormal situations, a change of vocabulary...

2. The design process is finished

3. This first tests lead to positive results :

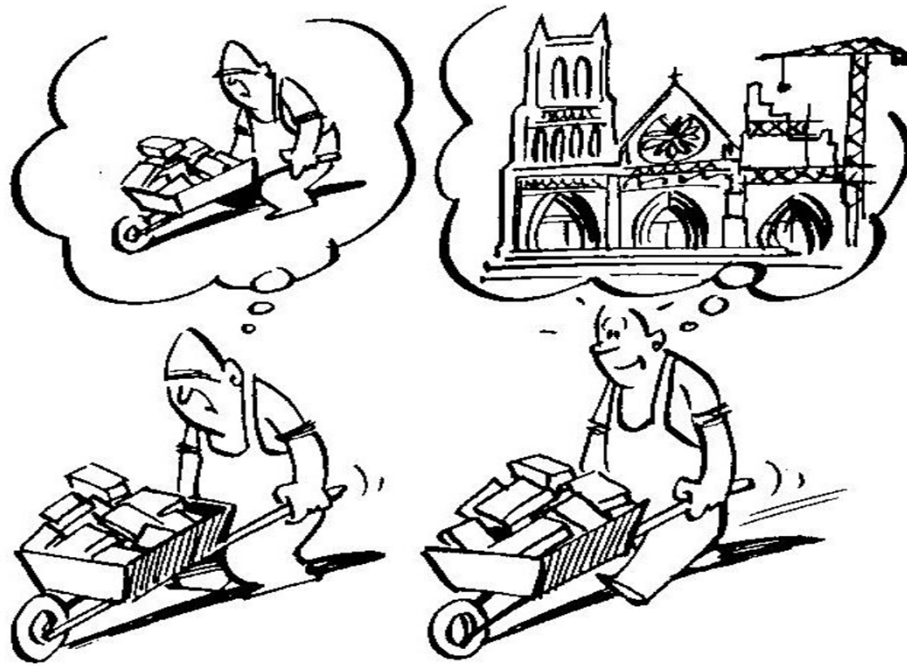
⇒ *Trainers : “we bring to the trainees more precise data and we observe the development of better practices and a “prevention attitude”*

4. This evolution calls for “cultural” evolutions :

- Design process and designers
- Relation between the trainers and the trainees: the trainers do not transfer data, they build a way to think and to work within a NPP
- The training job and tools must enhance active methods (study cases, problem resolutions)

5. Now a never-ending story begins : the steering change and the continuous improvement with ...12 training companies, 250 trainers.... (train the trainers....)

Change for what ?



THANKS