

DE LA RECHERCHE À L'INDUSTRIE



Sharing experience on the use of a 3D serious game and radiation simulator in Radiation Protection training



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- Context

- OSIRIS 1: Pedagogical approach and what we can do with?

- Feedback after 2 years of use

- From OSIRIS 1 to OSIRIS 2

- DosiCase as an additional tool to OSIRIS

- Conclusion

- Training for actors of radiation protection but also with training including radiation protection issues
- Public: PCR ~ RPO and Bachelor and Master degrees students
- Domains : nuclear power, industrial and medical (INSTN co-designer)
- Enhance autonomous of participants in relation to their training (b-learning approach)

What works for this kind of trainees:

- Pedagogical approach: development of skills by experimentation (without exposure) and arousing astonishment linked to the discovery of an "unknown" environment.
- Andragogical approach: associated to a learning Role-Playing Games. Link between professional and simulated situations practices (shielding, mapping, measuring...)
- Heutagogical approach: where learners take appropriate and effective measures to solve problems. Increase in radiation protection culture and development of group dynamics (collaborative activities in NPPs).

WHAT YOU CAN DO WITH

- Work on ALARA's methodology

- Targeted skills
 - Predictions doses (projected dose, real-time dose value)
 - Calculations (1 day practical work)
 - Cartography (realisation on empty map ...)
 - ...

FICHE D'ACTIVITE SECURITE - CARTOGRAPHIE
BOITE A EAU GV41
TH ouvert sans plomb

Tranche 1 2
 Référence de l'activité ZONE CONTRÔLÉE
 Indice de l'activité 0

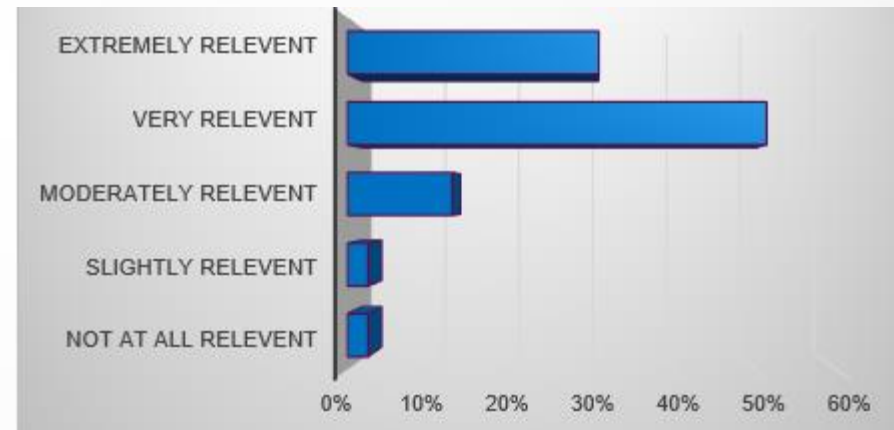
Plage documentaire (plans / photos)

RELEVÉ DES VALEURS MESURÉES

| MESURES EFFECTUÉES DANS LE LOCAL | | | MESURES SPÉCIFIQUES AU POSTE DE TRAVAIL (50 cm) | | |
|----------------------------------|------|----------------|---|------|----------------|
| N° resp. | Type | Valeur mesurée | N° resp. | Type | Valeur mesurée |
| | | | | | |
| | | | | | |
| | | | | | |

After 2 years of training in the use

- Did evolution and the simulation in a virtual environment seem relevant to the usual media ?
- Did this experiment enable the implementation of your skills and experiences?
- Are you convinced by the pedagogical value of this setting situation?
- Do you think that Osiris' working environment allows a truly and faithful immersion?
- If you were meant to do this kind of training, would you like to use OSIRIS again?



Implemented improvements

- Administrator mode to customise the “mission”
- RP activities to be performed
- Enlargement of the game space
- Dress / undressing “activities”
- Customizing the source characteristics



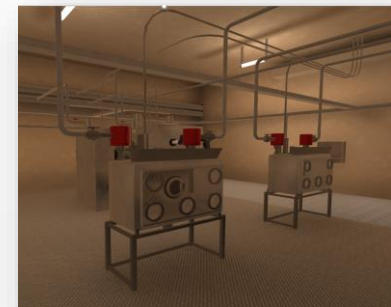
Serious game

- PC version vs. Version 3D VR

New features to customise

The different areas

- Changing room
- Transport
- Glovebox
- SG water boxes



DOSICASE AS AN ADDITIONAL TOOL TO OSIRIS

■ DosiCase: a training simulator

- After forming sequence on OSIRIS
- The parameters of the source terms are entered on the tablet
- The sources box are dispatched (hidden) in the school yard
- Trainees equipment (PPE + dosimeter + radiation meter) before being given their intervention order and the associated dose estimation
- They achieve the intervention in a radiological realistic environment (alarms, noise, heat...)
- The trainer may at any time :
 - Modify the dose rate level
 - Read the individual dosimeter value



REALISTIC RADIATION EXPOSURE SITUATION

- The contributions DosiCase :
- Diversity of situations that can be simulated:
 - Maintenance Yard
 - Site decommissioning
 - radiography
 - Emergency Response
- Diversity of trainees
 - Nuclear power plants or nuclear facilities operators
 - Radiation actors (RPW, RPO, RPE...)
 - Areas: Nuclear, Industrial, Medical and Research



- Tools appreciated by trainees (especially young people)
- Good training evaluation with these tools (3 hours to 2 days)
- Serious Game customizable according to industrial environments (dose rate, radionuclides...)
- Adapted tool for the ALARA implementation

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Thank you for your attention