

Safety and Emergency Management at Nuclear Power Plants: Education and Training Using Virtual Reality and 3D Gaming Technology

Executive Summary

Taking advantage of recent developments in virtual reality and 3D, computer/video games technology, we propose to develop several modules to teach and train the essentials of nuclear safety and emergency management, and incorporate them in university curriculum. All modules developed will be suitable for special purpose immersive equipment, as well as for standard PCs. (This is an extension request.) The last two years' focus was on the development of security & ALARA, and on education and training modules. This is the third, and last year, of this project. Focus this year will be on implementation of these modules in the classrooms.

Four 3D, immersive and interactive modules for role playing connected with nuclear safety as well as with those associated with emergency management have been developed. Safety-focused modules address topics such as training of students, NPP personnel and first responders under abnormal conditions (fire, security threat, etc.), while emergency-management focused modules, for example, allow training in virtual radioactive environment (visible radiation) to respond to emergency scenarios. A total of eight scenarios or case studies (such as a fire drill and radiation leak) will also be developed by the end of the second year. Modules will be integrated in courses at the University of Illinois at Urbana-Champaign (UIUC). Equally important, these modules will also be available to utilities as well as to other agencies, such as national labs for education and training purposes.

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