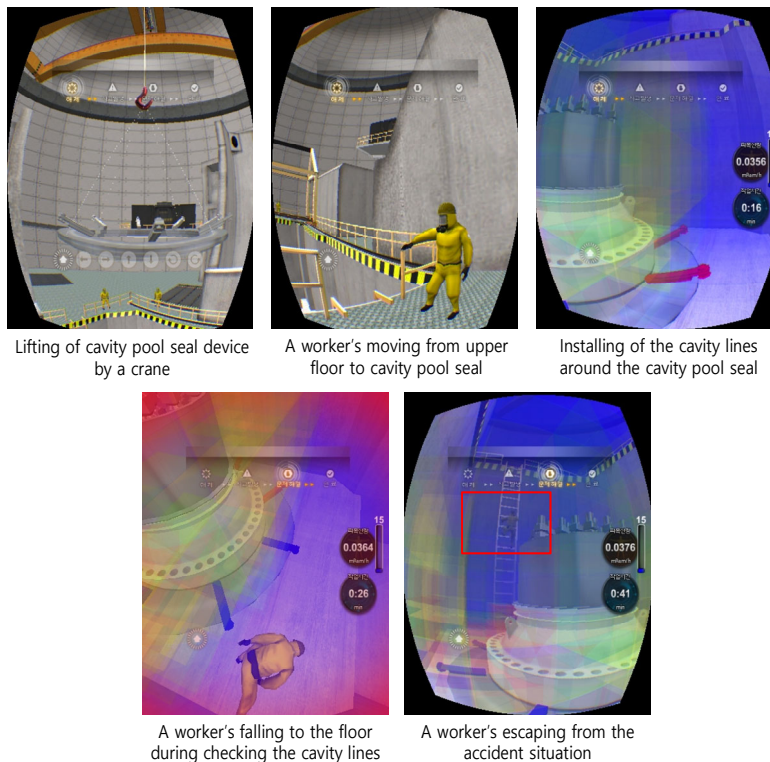# A 3D digital-based training system of safety assessment to reduce exposure and prevent accidents during decommissioning of nuclear facilities

KwanSeong Jeong

KAERI, Daedeok-daero989beon-gil 111, Yuseong-gu, Daejeon, Republic of Korea, 34057

ksjeong1@kaeri.re.kr

To simulate several scenarios of decommissioning process, testing environments have been designed on a virtual reality. A lot of scenarios were developed in 3D virtual environments to evaluate through simulation. The assumption on testing of the training system is that the worker's falling accident rises during installation of cavity pool seal. The performance test of the training system is shown in below figure. Once the subject puts the HMD on his head, he can look at the cavity pool seal lifted by a crane. The one subject starts to go down from the upper floor to the below cavity pool, the other subject supports the moving of the one subject. The other subject plays a role in supporting the one fallen subject in case of an accident. At this time the working time and radiation exposure of the subject are for the first time measured. During installing and checking of the cavity lines around the cavity pool seal, an accident of the one worker's falling takes place. The other subject observing the moving of the one subject goes down to the accident spot on a ladder and both of them gets to the upper floor. In the end, the accumulated working time and radiation exposure of the subjects are measured and displayed on the HMD in first mode and on the monitoring device in third mode.

Lifting of cavity pool seal device by a crane	A worker's moving from upper floor to cavity pool seal	Installing of the cavity lines around the cavity pool seal

A worker's falling to the floor during checking the cavity lines	A worker's escaping from the accident situation

Keywords: 3D digital-based system, decommissioning, accident, exposure, safety assessment.