

THE ASSESSMENT OF EXPOSURE DOSE TO THE RESIDENTS AFTER DECOMMISSIONING OF KORI NUCLEAR POWER PLANT UNIT 1 SITE WITH RESIDUAL RADIOACTIVITY ANALYSIS USING RESRAD CODE

Wednesday, 25 May 2016 09:00 (9 hours)

In 2015, Korean government decided to decommission Kori nuclear power plant unit 1 site. In this study, we tried to assess the exposure dose to resident after decommissioning of Kori nuclear power plant unit 1 site with residual radioactivity analysis and the possibility of opening site to public. For this approach, we decided radionuclides in decommissioned site and the concentration of them, and the geometrical shape and volume of this contaminated site. We considered a variety of exposure paths from contaminants to human body. The main purpose of decommissioning is to decontaminate the areas, which are exposed to radioactivity, down to a normal level in order to release them area back to a natural environment. To evaluate the possible dose exposure which may be caused by a trace of radionuclide in the decommissioned site, we considered several cases of each involved exposed paths. We used RESRAD code for the assessment of residual radioactivity over time.[1] We considered the paths of external exposure, respiration and intake to human body, and liquid and gas radionuclide in Kori nuclear power plant unit 1 site. We applied weather conditions near Kori nuclear power plant unit 1 for recent 10 years. The results were huge different 1970's, when built Kori nuclear power plant unit 1 site. Additionally, we improved reliability of results by analyzing and comparing dose conversion factor ICRP60 and ICRP103. In conclusion, the result was exceeding more than 10 times of 2.5mSv/y, which is NRC regulation in US, in the early stage of decommissioning. However, it decreased down to the normal dose 40 years after the decommissioning. After government making a decision the method which immediate or delayed dismantling, we have to study effects on decommissioning procedure and reassess periods of opening site to public.

Country or International Organization

Korea

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Session Classification: Session 4A - Poster

Track Classification: Technical and Technological Aspects of Implementing Decommissioning Programmes