New CTZ ALARA Tools Implemented at Cook Nuclear Plant

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This presentation discusses two NATC occupational dose reduction & source term characterization projects.

1. Removal of colloids from primary coolant by specialty resin

Cook Nuclear Power Station Unit 1 and 2 achieved significant source term reduction in primary coolant from 2002 to 2015. A new resin which was designed to remove colloids (Co-58 and Co-60) was implemented at Cook NPP. The Cook NPP achieved lowest PWR WANO 3 year rolling average for PWR in 2009. Significant reduction in refueling PWR dose was achieved at four sites using Los Alamos specialty resin.

2. Introduction of new CZT detector for temporary shielding adequacy verification and other uses

To improve accuracy of ALARA job dose estimates, RP Staff wanted to have isotopic identification in the field, and a new ALARA tool was introduced. H3D (Ann Arbor, MI), a spinout from the University of Michigan, has developed a handheld radiation camera called Polaris-H, a compact imaging spectrometer that can not only identify the isotopic composition of a gamma-ray source, but also image the distributed location of that source. The Polaris system is a Cadmium Zinc Telluride (also known as CdZnTe or CZT) array system designed by the University of Michigan. The new ALARA tool for RP analysis of individual isotopes in the field was introduced in 2014.