"EPRI Radiation Management Program: Review of Radiation Field Reduction Strategies"
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The EPRI's Radiation Protection Plan focuses on the Radiation Protection Strategic Plan, RP2020. The key challenges of the RP2020 are 1) supporting utilities to meet the expected dose limit change from 50mSv/year to a variant 20mSv/year, and 2) supporting the industry need for secured future workforce and infrastructure. The EPRI Radiation Protection Plan supports these targets through the reduction of source terms and the application of advanced radiation protection technology. This report summarizes the highlights of recent source term reduction and radiation protection technology.
The United States and Mexico are the only two countries that do not have radiation protection regulations conforming to the ICRP 60 Recommendations, which specifies the dose limits for 5 years as 100 mSv and annual dose limits as 50 mSv. As the recent suggestion by the Nuclear Regulatory Commission notes, it is expected that radiation protection regulations be reviewed by experts and the ICRP dose limits be applied.

Highlights of source term reduction

In the U.S., radiation field data for PWR's outage are collected by utilities and reported to the Standard Radiation Monitoring Program (SRMP) on an alternate year basis. The radiation field data collected for a BWR are reported to BWR Radiation Assessment and Control Program (BRAC).

According to the latest SRMP status, all top four recent dose rate data on the lower surface of the center of SG channel heads of Westinghouse-type plants are the plants which adopted the zinc injection and electro-polishing of SG channel head methods. The reduction trend in the surface dose rate data for cold leg piping is observed in the plants which implemented zinc injection and SG replacement with some influence of boiling due to increased fuel loads.

The latest BRAC dose rates range between 0.1 and 9 mSv/hr. Recently, many U.S. BWRs use both NMCA and HWC while some plants use only HWC or only NWC. Dose rate data show that low dose rates have been achieved by the combination of decontamination and zinc injection.

Highlights of radiation protection technology

The EPRI Radiation Protection Plan focuses on high dose tasks (individual and collective), and a preliminary study is currently underway. In the project scheduled to launch in 2010, five overarching tasks are being planned.

1. Collecting information on high dose tasks and dose data from utilities.
2. Creating a list of sub-tasks which can be improved by using the latest technology.
3. Assessment on the organization of the tasks, reduction of work hours, separation distance of the work place, and improvement of shielding.
4. Exploring technologies of non-nuclear power industries that can be applicable to the needs of RP or developing new technologies that fulfill these needs.
5. At the same time, checking to see whether utilities intend to introduce new technology.

Also, new technology candidates such as 3D position sensors, new shielding technology, RadBall™, etc. were introduced.