

N101. Video Cameras At Nuclear Plants

Nuclear power plants have long employed closed-circuit television in a few applications, but early setups were available only as engineering-intensive, turn-key systems. At least three factors have significantly expanded the prospects for in-plant video over the past decade: the Three Mile Island cleanup efforts led to innovative new applications and configurations for video cameras; prices for video systems have continued to fall; and advances in technology have improved system performance. A recent EPRI survey has shown that the modest cost of low-end systems can now be easily justified by high benefit ratios in a number of applications. Once installed, camera systems may spin off unforeseen operating improvements. Today, a few utilities are encouraging technicians, supervisors, and engineers to experiment with video technology to gain direct benefits and create opportunities to improve productivity and reduce costs.

The widest application of video technology is in dose reduction for health physics technicians. At the Oyster Creek plant in Forked River, New Jersey, for instance, the engineering department documented significant savings (6.4 person-rem) in exposure of health physics technicians over the course of a 13-day repair project. The second most useful application is in work crew supervision. Carolina Power & Light, for example, reports savings between 18-22 person-rem per year at its Brunswick plant by using voice and video supervision of operation and maintenance crews. A third important application is in general area surveillance and inspection. The lowered exposures that result from these applications are typically valued at \$5000 per person-rem according to one source in the study. Explains EPRI project manager John O'Brien, "Workers who get more than their quarterly allotment of exposure may have to be replaced. But the cost of exposure is not measured just in labor costs." Outages may become longer as well, says O'Brien, as work crews are rotated to complete a job. Longer outages, of course, mean higher outage costs.

Spin-off applications of video technology include video previews of work sites, improved crew communications, and enhanced working visibility for crane operators. Florida Power & Light has even created a plant television network to inform and educate employees continuously.

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