N235. Use of Multimedia for Nuclear Power Plants

Multimedia is combining text, images, and sound to convey information. These three means are used by people to assimilate information, and combining them in special ways will make that assimilation easier, faster, and more complete. In theory, we use existing tools (computers, videotape, videodiscs, and digital audio) to combine words, numbers, pictures, and sounds. In practice, it is complicated and expensive because:

- Figuring out what to do (termed "authorizing") is a creative skill that relatively few do well;
- the lack of standards makes connecting tools and moving information between them difficult, and
- it requires large amounts of computer processing power to manipulate and display images in "real time" (30 frames per second for full motion video).

   A few nuclear plants are using multimedia's full capabilities. The following are some interesting examples of multimedia projects addressed in the EPRI report, "Video Camera use at Nuclear Power Plants: Tools for Increasing Productivity and Reducing Radiation Exposure" (NP-6882).

General Employee Training (GET)

   The New York Power authority (NYPA) is heavily involved in multimedia, specifically interactive videodisc-based training. They selected GET for their first multimedia effort as a way to overcome some of the problems with conventional training techniques including: (1) inability to address the needs of individual students; (2) excessive time for retraining, (3) inconsistent presentation of course material due to a variety of instructors, and (4) instructors dissatisfaction with repeatedly teaching the same basic material. The student controls the training by navigating through seven topics (security, safety, radiation protection, etc.) and is exposed to text, still graphics, animation, still video, motion video, and sound. The training also includes a fifty question multiple-choice test randomly selected from an examination bank. Incorrect answers cycle the student back through the training material and the student is retested. NYPA personnel are now working to extend interactive videodisc training to reactor theory and operations, mechanical maintenance, and radiological work practices.

Informal Training Aids

Personnel in the Health Physics Department at one plant are using a personal computer (PC) workstation to make a short multimedia presentation on using the new portal radiation monitors that the facility purchased. They noted that workers, despite verbal instructions, were not using the monitors correctly. Accordingly, they are assembling a short instructional presentation, converting the presentation to videotape, and using it to train workers. This differs from other training videos in that the work will be done in-house on a PC platform and is not being managed by the Training Department.
A new technology, CD-I (compact disc-interactive), is making multimedia presentations easier, faster, and cheaper to produce. Discussed in the EPRI report, CD-I holds the promise of making multimedia widely available to the industrial user.