



## Deployment of Integrated Floor Decontamination and Characterization System (IFDCS) at Rancho Seco Nuclear Power Station

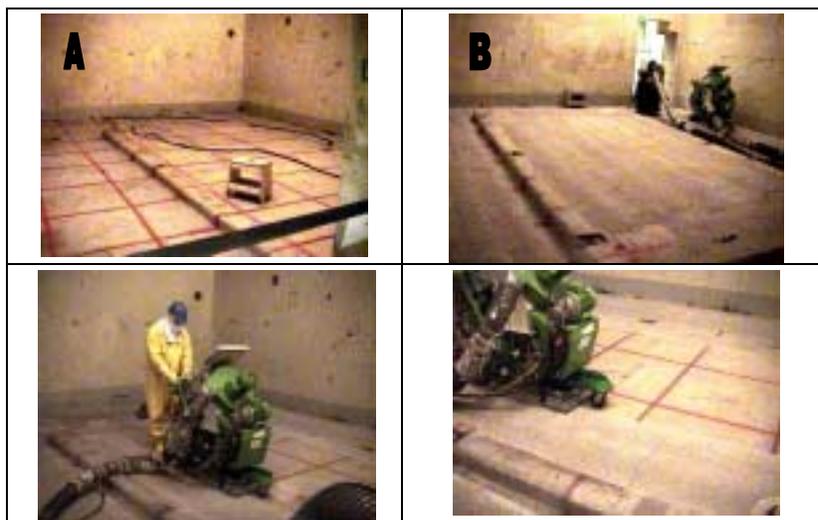
Addressing a need for more efficient and cost-effective technologies to expedite closure activities at several DOE facilities, HCET has developed and deployed the Integrated Floor Decontamination and Characterization System (IFDCS). The system consists of a decontamination technology, characterization sensors and waste collection vacuum system. The decontamination technology used is an electrically powered, self-propelled, EBE portable shot-blasting unit. The unit has blast width of 13.8" (350mm) and is capable of removing ¼" of concrete by mechanical abrasion. The on-line measurement system consists of two large-area (6" 4") gas proportional SP detectors in front of the shot blast chamber and an identical detector behind the chamber, all mounted at 2" from the concrete floor. The detectors have an efficiency of 1% for gamma, 10%-30% for beta and 0-100% for alpha. A computer and a flat panel display, mounted on the machine, display the count rate from both detectors for a real-time measurement of decontamination. A custom software application developed by FIU-HCET controls the supporting modules and calibrates the detectors based on the work area.

### Objective

The objective of this deployment was to decontaminate Auxiliary Building rooms that previously held waste processing tanks. The rooms contained contamination in the range of 100 CPM – 400,000 CPM, with dose rates as high as 300 mRad/hr. Pictures below (A & B) shows a Boric Acid Evaporator room before and after decontamination, respectively.

### Results

After an evaluation of the before and after surveys taken by the IFDCS and those collected during surveys, displayed decontamination factors in the mean range of 2 – 81, with a factor as high as 1000 in one grid. The system became contaminated during testing due to the high levels of contamination and is currently being prepared for shipment as a limited quantity item.



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