IN SITU METHODS FOR CHARACTERIZATION OF CONTAMINATED SITES

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The establishment of radiological maps for the appraisal and for the monitoring of any work in nuclear environment is a crucial issue to deal with. Radiological evaluations have to be performed, before and after the decontamination process, thanks to an optimized amount of samplings and radiological and chemical analysis.
Thanks to the experience feedback, sampling and optimized amount of samples protocols have been established, as well as data analysis and modelling tools.
In order to address these various operations, the very first "Commissariat à l'Energie Atomique" (CEA, French Atomic Energy Commission) has implemented over the last 10 years an innovative methodology aiming at characterizing radiological contaminations of its sites. This center was set up in 1946 in the Fort of Châtillon, located in Fontenay-aux-Roses, 7 km south from Paris. After implementation of programs related to evacuation of nuclear materials, a remediation plan of the whole site was elaborated in 1995. Today, the facilities are going through a remediation program that will allow setting up buildings for new research activities.
The goal of this methodology relies on various tools such as expertise vehicles with comprehensive detection performances (VEgAS) and recently developed software platform called Kartotrak. A Geographic Information System tailored to radiological needs constitutes the heart of the platform; it is complemented by several modules aiming at sampling optimization (Stratege), data analysis and geostatistical modeling (Krigéo), real-time monitoring (Kartotrak-RT) and validation of clean up efficiency (Pescar).
The use of all of these tools allows optimizing volumes and cost of the remediation process.