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MOBILE LABORATORIES: AN INNOVATIVE AND EFFICIENT SOLUTION FOR RADIOLOGICAL CHARACTERIZATION OF SITES UNDER OR AFTER DECOMMISSIONING AND ENVIRONMENTAL REMEDIATION PROGRAMMES.

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During the operation and the decommissioning of a nuclear site the operator must assure the protection of the workers and the environment. It must furthermore identify and classify the various wastes, while optimizing the costs. At all stages of the decommissioning radiological measurements are performed to determine the initial situation, to monitor the demolition and clean-up, and to verify the final situation.
Radiochemical analysis is crucial for the radiological evaluation process to optimize the clean-up operations and to the respect limits defined with the authorities. Even though these types of analysis are omnipresent in activities such as the exploitation, the monitoring, and the cleaning up of nuclear plants, some nuclear sites do not have their own radiochemical analysis laboratory. Mobile facilities can overcome this lack when nuclear facilities are dismantled, when contaminated sites are cleaned-up, or in a post-accident situation.
The current operations for the characterization of radiological soils of CEA nuclear facilities, lead to a large increase of radiochemical analysis. To manage this high throughput of samples in a timely manner, the CEA has developed a new mobile laboratory for the clean-up of its soils, called SMaRT (Shelter for Monitoring and nucleAR chemisTry). This laboratory is dedicated to the preparation and the radiochemical analysis (alpha, beta, and gamma) of potentially contaminated samples. In this framework, CEA and Eichrom laboratories has signed a partnership agreement to extend the analytical capacities and bring on site optimized and validated methods for different problematic.
Gamma-emitting radionuclides can usually be measured in situ as little or no sample preparation is required. Alpha and beta-emitting radionuclides are a different matter. Analytical chemistry laboratory facilities are required. Mobile and transportable laboratories equipped with the necessary tools can provide all that is needed. The main advantage of a mobile laboratory is its portability; the shelter can be placed in the vicinity of nuclear facilities under decommissioning, or of contaminated sites with infrastructures unsuitable for the reception and treatment of radioactive samples. Radiological analysis can then be performed without the disadvantages of radioactive material transport. This paper describes how this solution allows a fast response and control of costs, with a high analytical capacity.

Country or International Organization

FRANCE

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