

## RESEARCH PROJECT QUANTOM®

### QUantitative ANalysis of TOxic and non-toxic Materials

The best way to analyze legacy waste, reduce the costs and reduce the risk for the environment.

#### Challenge

Due to the hazard it poses, radioactive waste must be properly characterized and conditioned for ultimate disposal in the final repository. The risk posed by the waste is the potential biological damage caused by the ionizing radiation emitted by the radionuclides, as well as the chemical toxicity (material content) of i.e. water-polluting substances contained in the waste. To date, a material characterization review of (legacy) radioactive waste for ultimate disposal usually involves opening of the packages. That opening for visual inspection or sampling is a complex and costly process that includes dose exposure and environmental risks, leads to additional nuclear transports and at the end an extra repackaging effort.

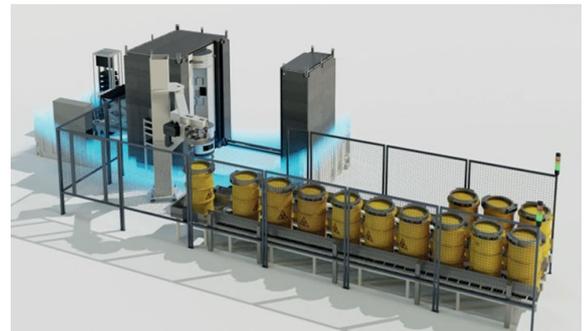
#### Solution

Quantom project will develop and validate a non-destructive analysis method using the prompt and delayed gamma neutron activation analysis (P&DGNA) for material characterization.

This innovative waste package inspection system will enable the waste producers to verify or, if necessary, complete the material description of the radioactive waste.

A random or full-scope Quantom-inspection of waste packages will allow the plausibility checking of the declared substances for the inspection lot. This unique possibility of analyzing waste drums non-destructively and without repackaging greatly reduces the radiation exposure of the operating personnel and avoids increasing the volume of waste. On top, QUANTOM will be developed as a mobile system integrated into a 25-ft.-container. That means, use of QUANTOM directly at the waste storage or conditioning sites and no extra transports of packages or samples are necessary.

At first Quantom will be designed to analyze 200l-drum waste packages.



Mobile QUANTOM® with drum magazine

#### Technical information

- Measuring by using the prompt and delayed gamma neutron activation analysis (P&DGNA)
- Mobile Unit
- Transportable in a 25-ft.-container
- High shielding:  
Minimize dose rate (<10 µSv/h)  
Reduced licensing efforts during measurement campaign
- Equipped with handling crane assembly

#### Key figures

**2-4 hours** for one drum

**50 %** Cost Saving

#### Customer benefits

- Avoid opening of waste packages
- Accelerate the process of material characterization
- Minimize staff dose
- Reduce the number of radioactive transports
- Avoid re-packaging and new conditioning of legacy waste

**Your performance is our everyday commitment**

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