

VLLW Waste Measurement Chains

CEA Marcoule



Design, implementation, installation and commissioning of a characterization chain for VLLW (Very Low Level Waste) waste packages

| The challenge

- Design studies: sizing of the acquisition chain, mechanical and electrical design, development of specific client software interfaces,
- System realization,
- Qualification and calibration of acquisition chains,
- Assembly and factory testing,
- Installation and site testing,
- Commissioning of the system,
- Operator training.

| Veolia's solution

Gamma Chain:

- 1 TF400 turntable - standard VNS product,
- 1 riser + 1 basket (accessories for measuring certain specific packages),
- 1 mobile table detector support (forward/backward; up/down) - standard VNS product,
- Table accessories: laser meter, barcode reader, inverter for electrical protection of the detector,
- Acquisition chain: 1 CeBr3 detector + MCA electronics,
- 1 Pb/Cu collimator - standard VNS product,
- Software on the measurement PC: Gamma spectrometry software Visu Gamma - standard VNS product,
- TF400 software - standard VNS product,
- Specific VNS software suite for interfacing with the CEA's Caraïbes software (software used nationally by the CEA to ensure homogeneous management of waste characterization chains).



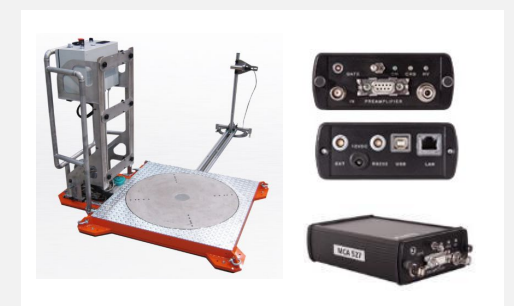
France



Contract Facts:

Duration: 14 months

Type: Design, manufacturing, installation, commissioning, operator training



| Performance

Type of measured package and waste matrices:

- 100 litre bags (weight < 30kg),
- 118 litre drum (average weight 30kg),
- 200 litre drum (max weight 400kg),
- 223 litre drums,
- 25 and 50 litre decanter jar (Dust).

Type of waste: VLLW waste of various matrices Déchets non métalliques compactables :

- Compactable non-metallic waste: soft plastic, vinyl, gloves, paper...
- Non-compactable non-metallic waste: PVC, plexiglass, rigid plastics...
- Inert waste: earth, rubble, concrete...
- Small size metallic waste: screws, various metal parts
- Dust (decanter jars).

- Detection Limit for Cs-137 (was 118L 30kg at 50cm - 30min): 7.10^{-2} Bq/g
- Measurement rates: 2 drums / hour



| Feature

- Compatible with CEA's supervision software: Caraïbes,
- Automatic control of the TF400:
 - parcel weighing,
 - measurement distance recording,
 - rotation initiating,
 - rotation stopping
- Automatic acquisition via Visu Gamma,
- Automatic spectrum processing (identification, quantification of RN present),
- Measurement report edition,
- Automatic recording of parameter files and result files.

