

WELCOME AT RAWFILL MID TERM EVENT



MANAGING PAST LANDFILLS FOR FUTURE SITE DEVELOPMENT: A REVIEW OF THE CONTRIBUTION OF GEOPHYSICAL METHODS



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About us



Partners involved in geophysical activities

- University of Liège (Belgium) & UK Research and Innovation / British Geological Survey (UK)

Our main tasks within RAWFILL

- Geophysical characterization of landfill pilot sites (WPI1, WPI2) and additional landfills (WPT1)
- Demonstrate the added value of geophysics (WPT3)
- Academic training (WPLT and WPC)



UK Research
and Innovation

A short introduction to geophysics: definition

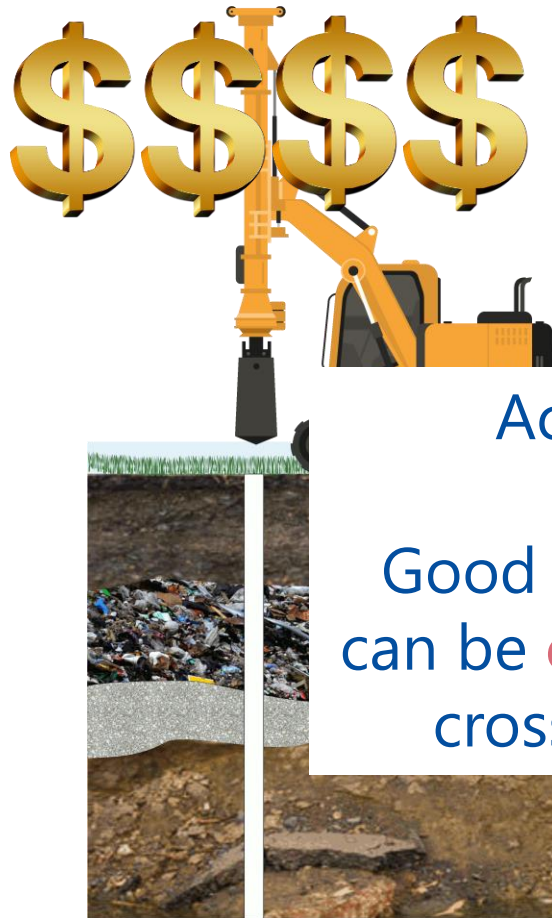


“The subsurface site characterization of the geology, geological structure, groundwater, contamination, and human artifacts beneath the Earth's surface, based on the lateral and vertical mapping of physical property variations that are remotely sensed using non-invasive technologies” (EEGS 2018)

Why geophysics for landfills characterization?



Classical approach: drilling and sampling



Accurate information

BUT

Good **spatial** characterization
can be **costly** and lead to **higher**
cross-contamination **risks**



Medical analogy



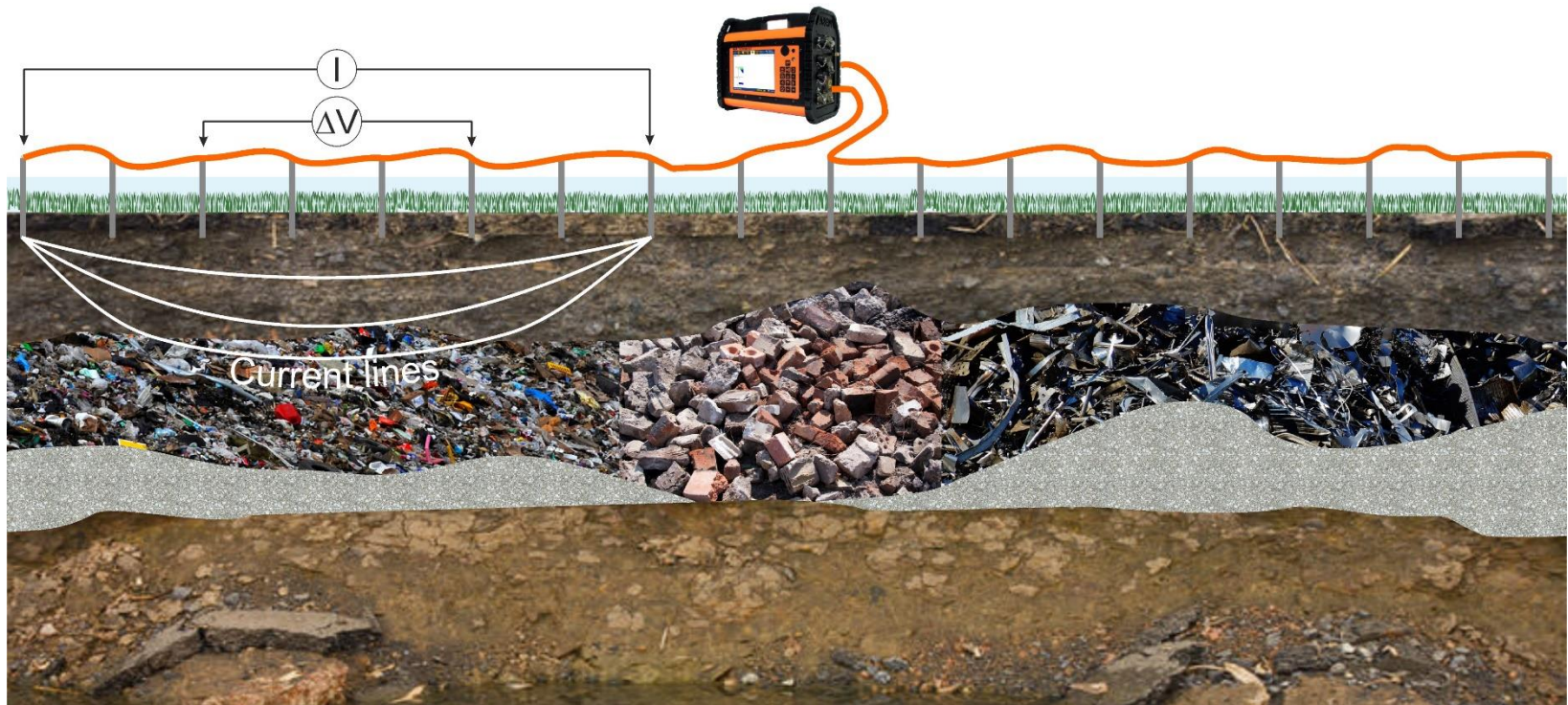
**DOC SAID HE COULD GIVE YOU A CAT SCAN
BUT HE WANTS TO TRY IT THIS WAY FIRST!**

Proposed approach: use geophysics (here ERT/IP)

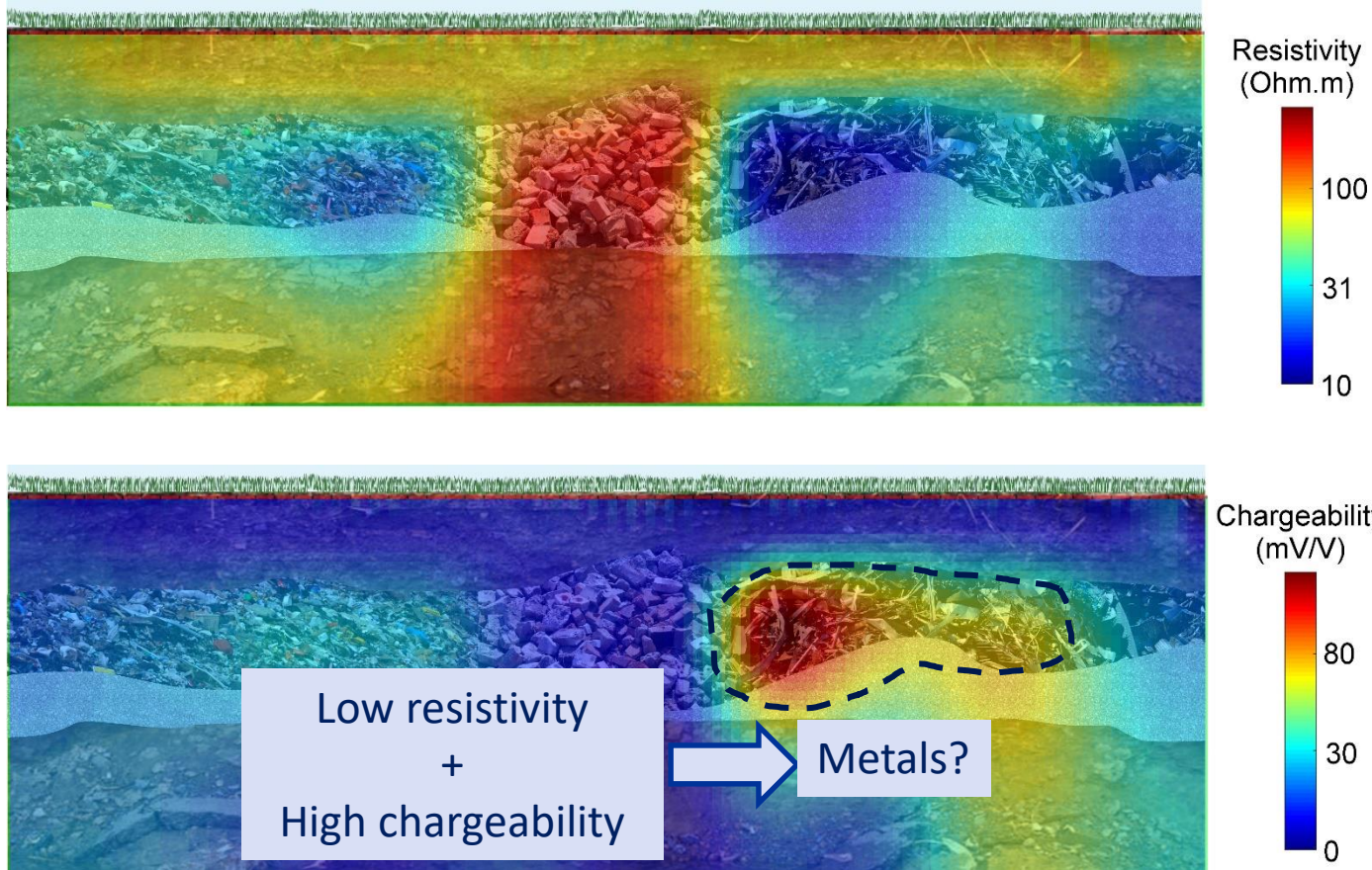
Stainless steel electrodes



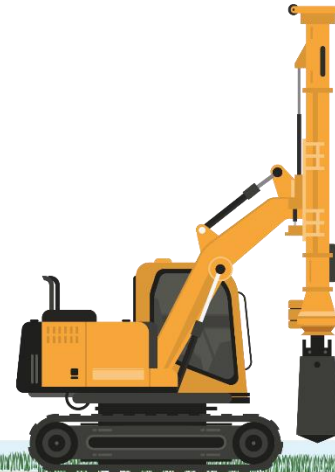
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Guided sampling in the zones of interest revealed by geophysics



Information provided by geophysics

Mapping spatial variations in:

- Lithology/waste type/density
- Water content
- Pore fluid or total dissolved solids
- Mechanical properties
- Metallic content

Monitoring changes in:

- Waste mass
- Amendement injection
- Compaction/density/porosity
- Gas production

Objective: Translate the geophysical variations or changes into property of interest assuming a relationship.

Pros and cons

- Non to minimally invasive
- Relatively low cost
- Large coverage
- See through technology
- Indirect information
- Resolution decreases with depth
- Prone to modeling errors (artefacts)



Some applications

- Landfill extension and geometry
- Waste composition
- Monitoring (moisture, gas content, leachate)
- Liner integrity
- Leachate contamination plumes

RAWFILL

Now some applications within the RAWFILL projet