

WASTE

NO MORE



Reuse of NORM materials

Waste no more.

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Topics

- Landfill Maasvlakte
- Introduction
- Technology
- Results
- NORM materials
- Questions



Landfill Maasvlakte (VBM)



Landfill and Immobilisation plant Maasvlakte (VBM)



Facts & Figures

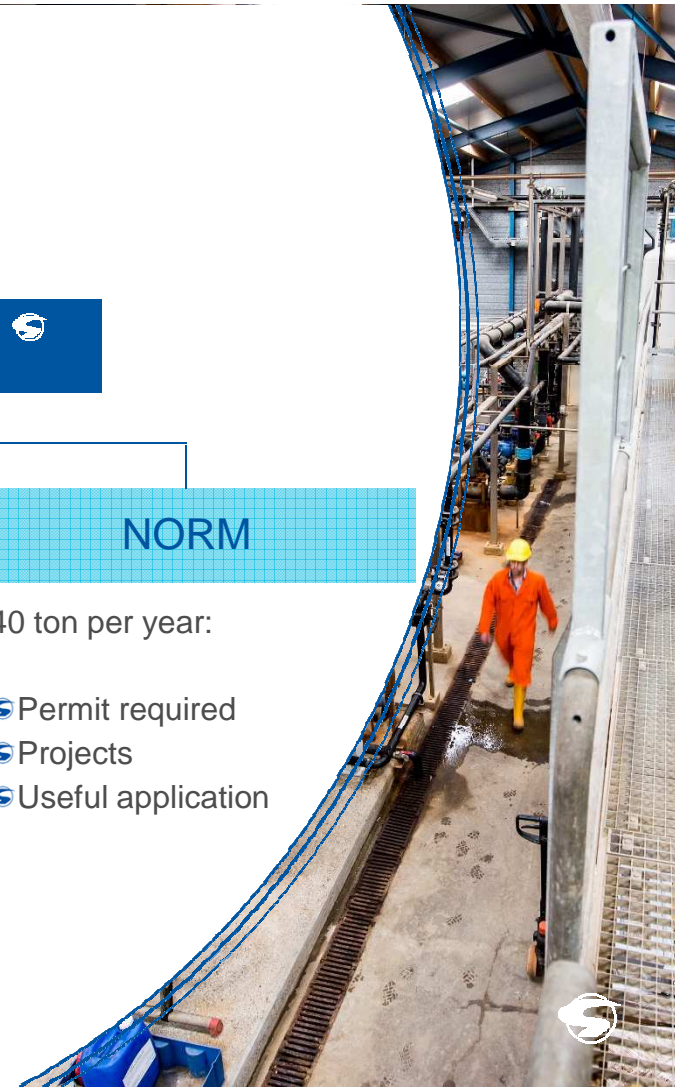
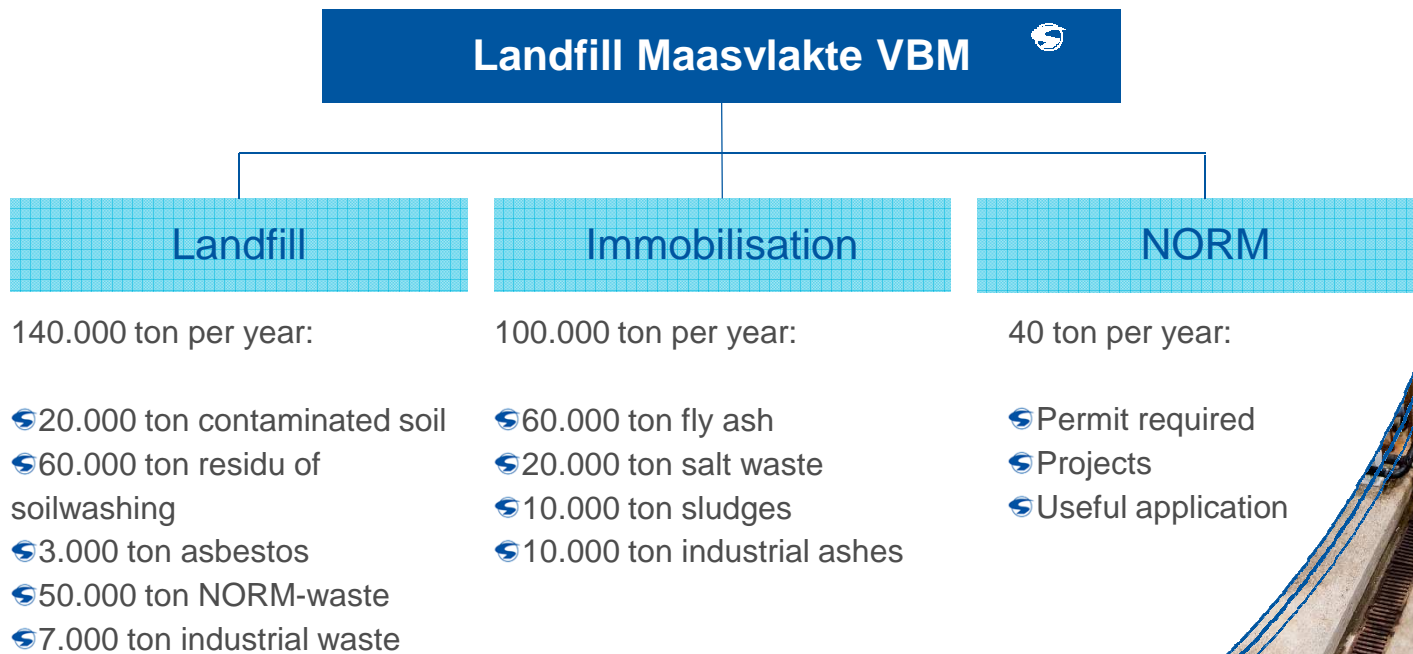
Key figures

- Landfill operational since 1988
- 22ha (220.000 m²)
- Capacity 4 mio m³
- Completely equipped for hazardous waste
- Immobilisation since 1997
- 30 fte
- Since 2008 part of Van Gansewinkel Groep



Facts & Figures

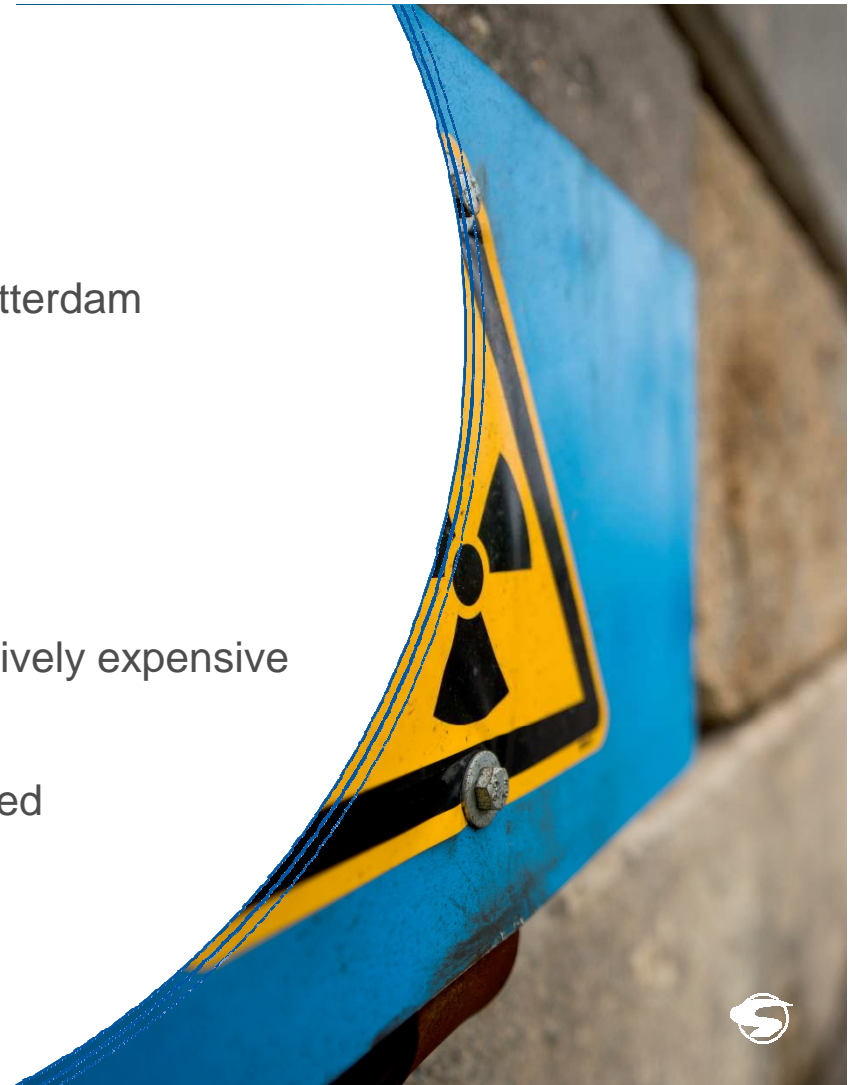
Activities



Introduction

Problem

- Two containers Zircon sand in the harbour of Rotterdam
- Radiation too high to dispose on a landfill
- But radiation was the only problem
- Despite radiation still a raw material
- Only existing possibility: COVRA
- Not intended for stocking bulk materials and relatively expensive
- The need for an alternative was highly appreciated



Introduction

Solution

- Certain types of material can be used as an additive in our immobilisation technique
- The fact that material is NORM does not mean it could still be applied in a useful way

Considerations:

- NORM is a health and safety problem
- If we can secure that, than we can use the material
- If we can use NORM, it means need of less primary additives
- In that way it is useful even applied on a landfill!



Technology

Immobilisation technology

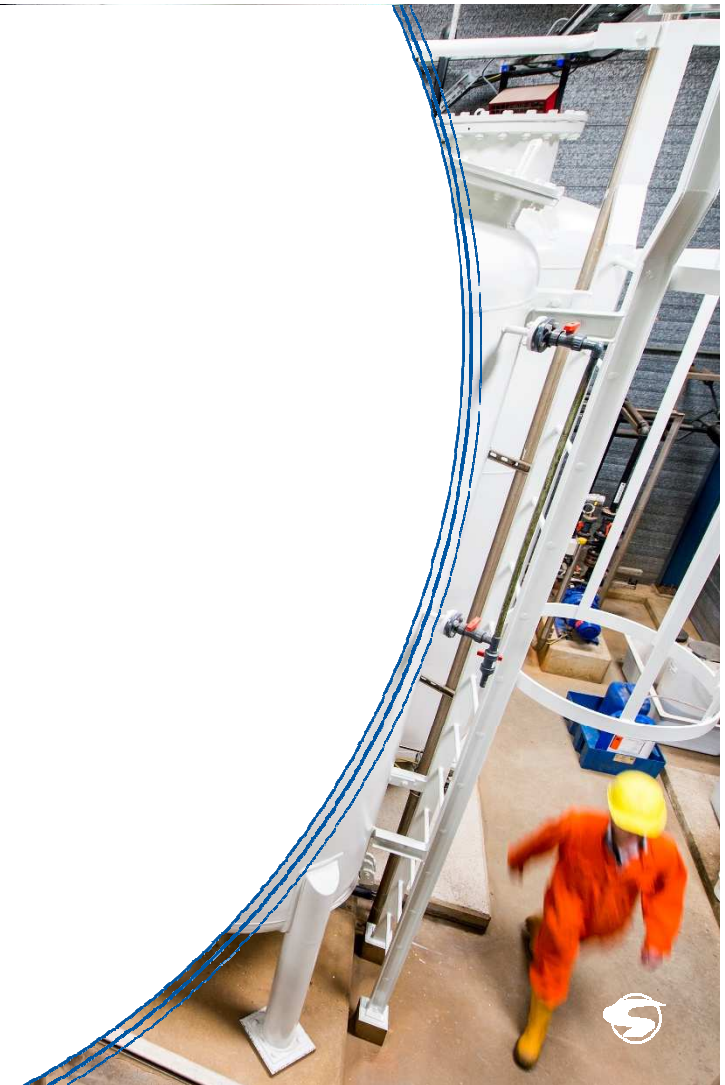
- Proven technology
- Straightforward and effective
- Used in a controlled environment

Secured proces

- Continuous external supervision
- Prudent procedures and workmethods
- Safety first

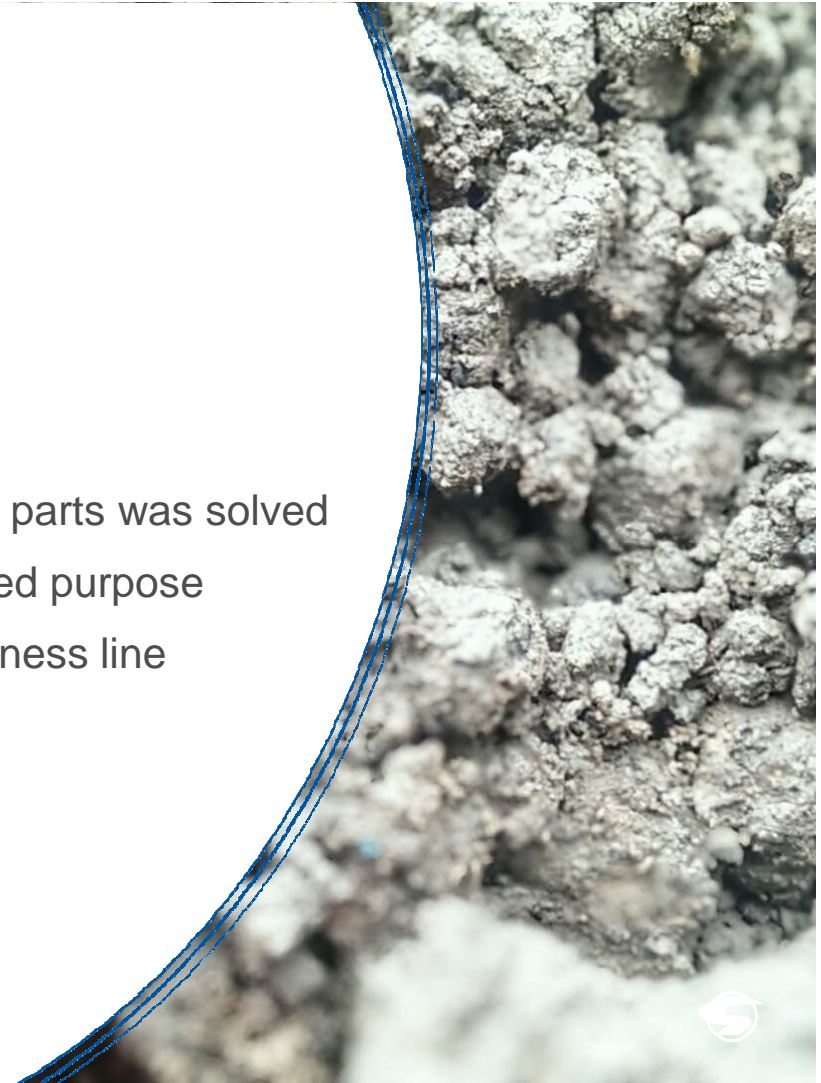
Product

- Has to meet certain specifications
- Provable by means of standard testing



Results

- The pilot Zircon Sand was very succesful
- Other materials also gave very good results
- The challenge to reduce slag wool in small usable parts was solved
- All materials we have used so far meet the intended purpose
- In the meantime this concept introduced as a business line



NORM materials

Specialties

- Unexpected once occurring (mineral) materials, such as zircon sand

Sludges/scales (offshore)

- Dried mineral scales
- Residues of vacuumdestillation (mercury recovery)

Slag wool

- Older type of insulation of thermal process industry, such as refineries or power plants



Images



Images





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