

“Introduction to the design of a safe and healthy low emission terminal.

DD 14 February 2024



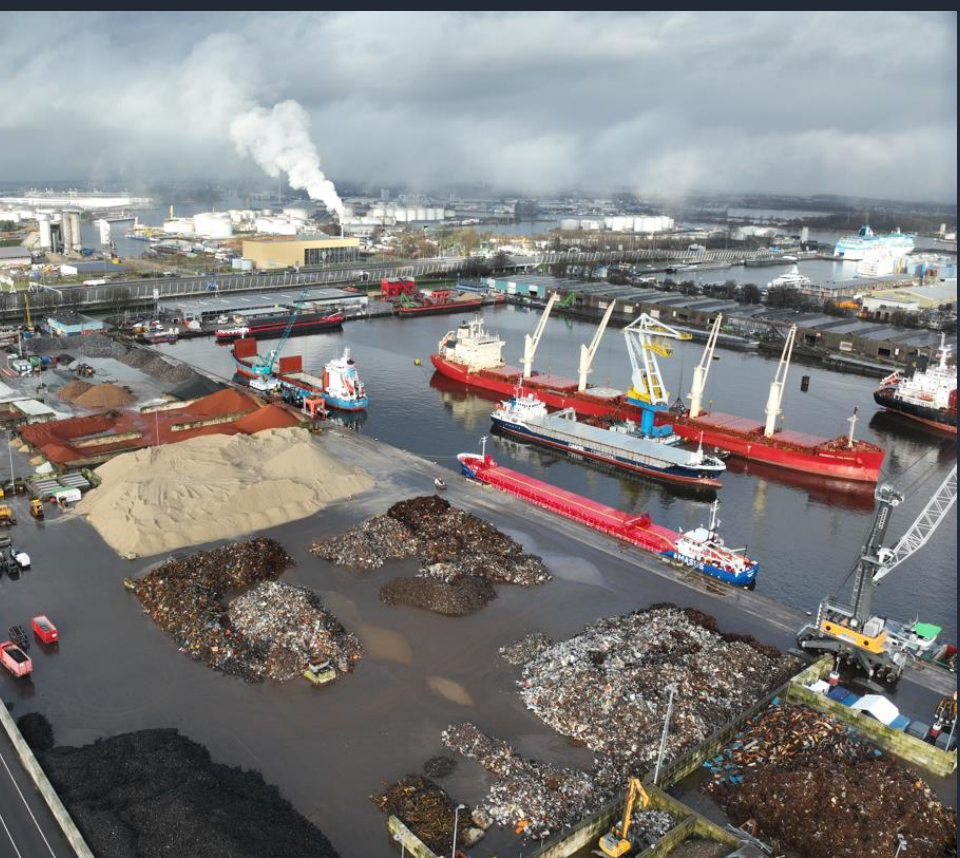
What measures are necessary to secure an environmental friendly, safe and healthy storage terminal for handling scrap metals?

Introduction

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Agenda



The beginning

The research

Conclusion & recommendations

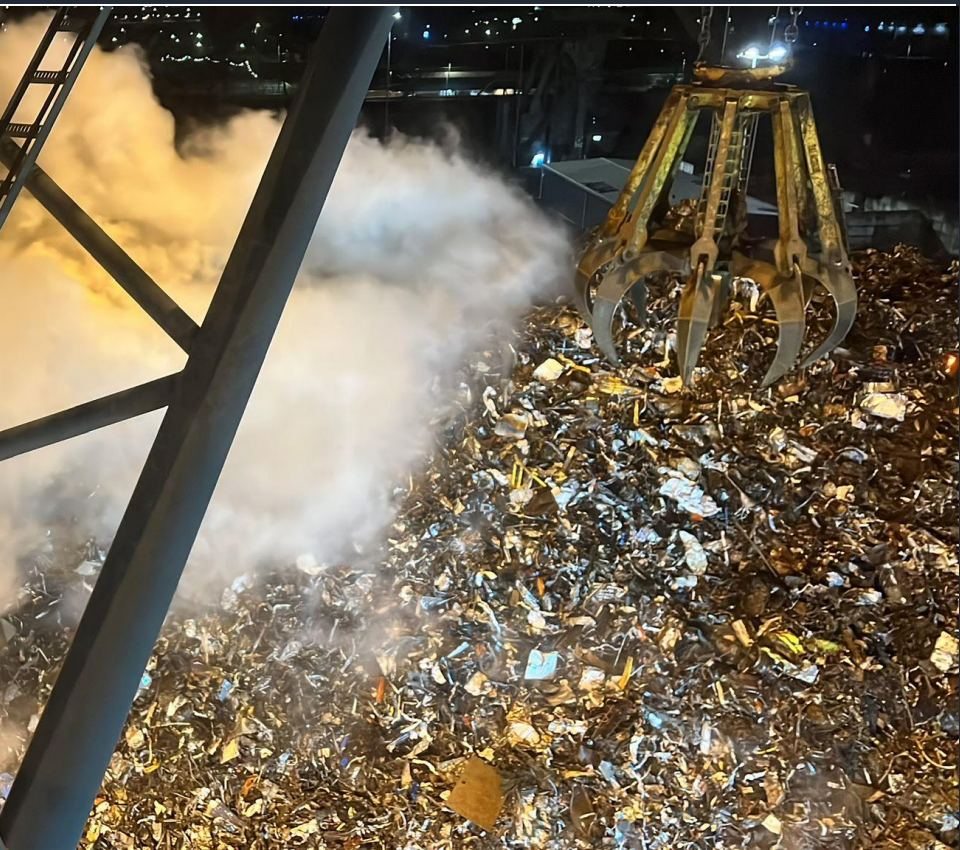
Safety risks

Health risks

Environmental risks

Questions?

The beginning



The reason:

An expansion of work with a new storage and transshipment location. A new location can be seen as a new service and this entails a new set of risks.

The problem statement:

What measures are necessary to achieve environmentally friendly, safe and healthy storage and transshipment of scrap (and other bulk) at the Vlothaven location?

Goal:

The outcome of this research is a risk inventory and evaluation, including an action plan

Research



Literature review

Key concepts, Environmental Permit Law, decision, and/or regulations

Practical research

Documentation review

Discussions with colleagues

Coördination and discussions with various parties

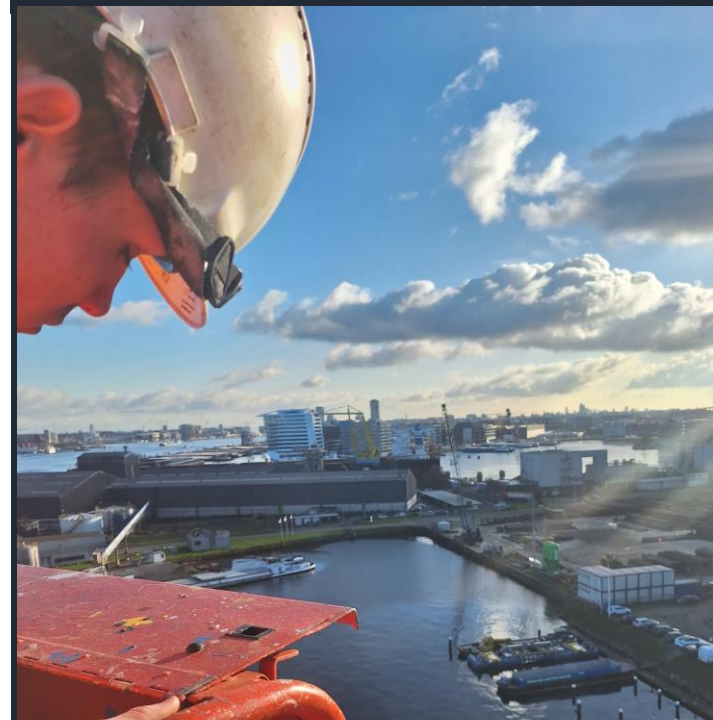
Working together with Kuiper & Burger consultancy

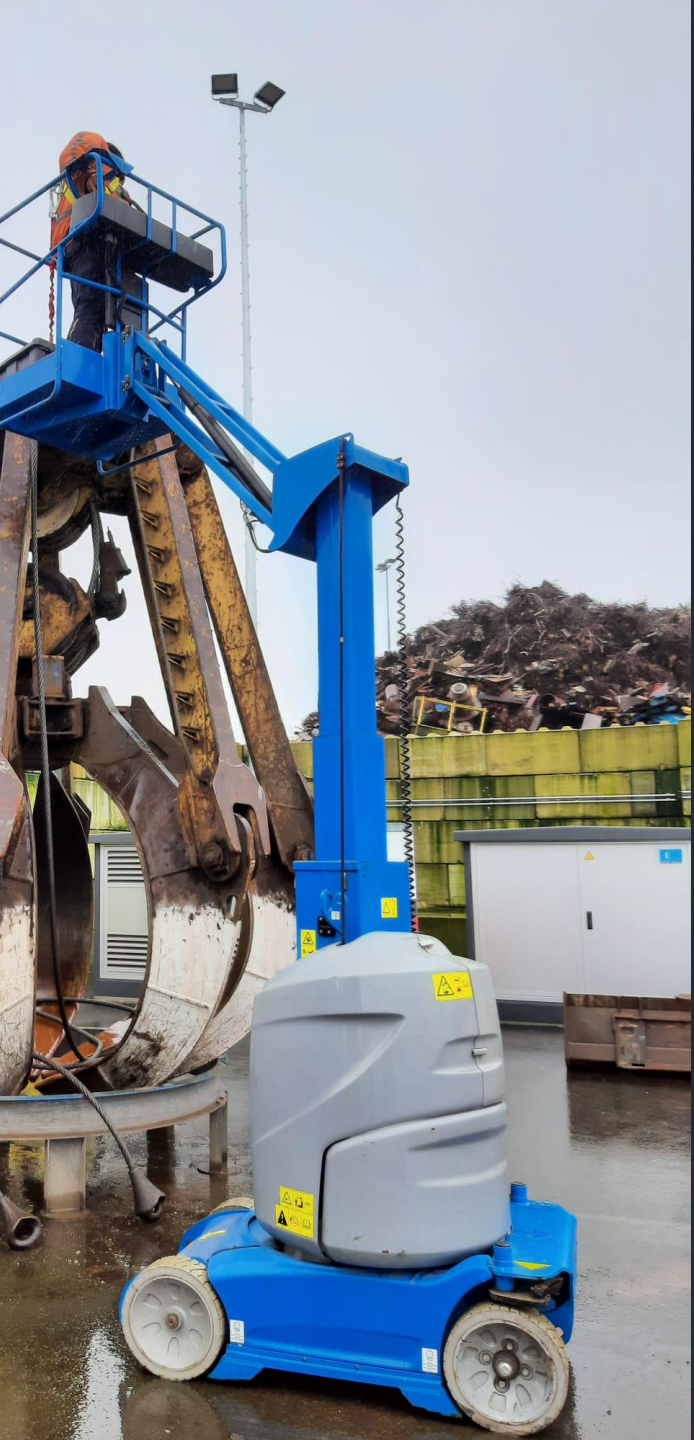
Benchmarking

Drawing up an RI&E reporting and action plan



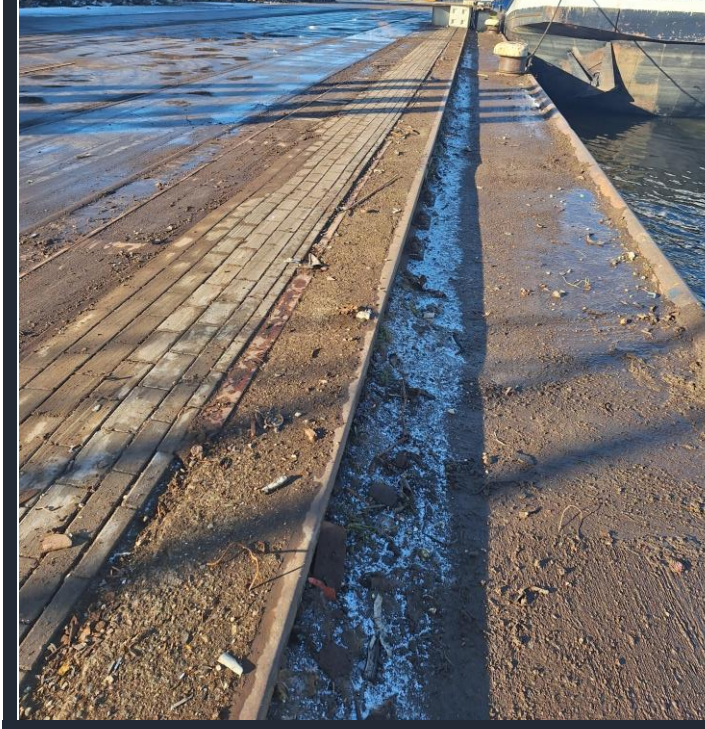
Conclusion
Safety risks
Health risks
Environment risks





Safety risks

Grab changing
Fall, stumble, slip
Collision hazard





Health risks

Particulate matter
Physical strain & body
vibrations
Harmful noise





Environmental risks

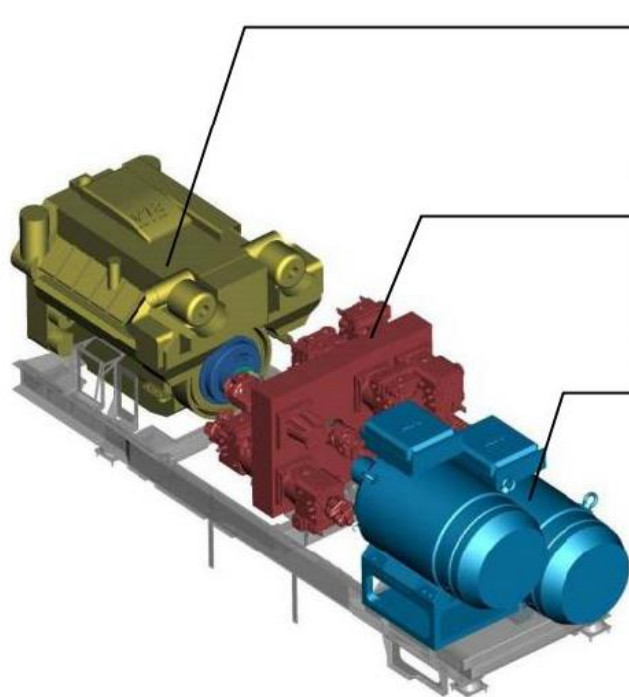
Emission (Carbon dioxide CO₂ & Nitrous oxide)

Discharge of polluted water
scrap fire



Electric lay out and machinery

LIEBHERR LHM 550 Hybrid-drive and cable drum



DIESEL ENGINE (Standard)
725kW LIEBHERR Diesel engine

HYDRAULIC AGGREGATE with distributor gearbox
For hoisting, slewing, luffing, travelling, cooling, AC-generator, etc.

E-DRIVE (optional)
Two electric squirrel cage induction motors
Power ratings depend on crane sizes (see table below)
Constant speed operation with 1500rpm (50Hz) or 1800rpm (60Hz)

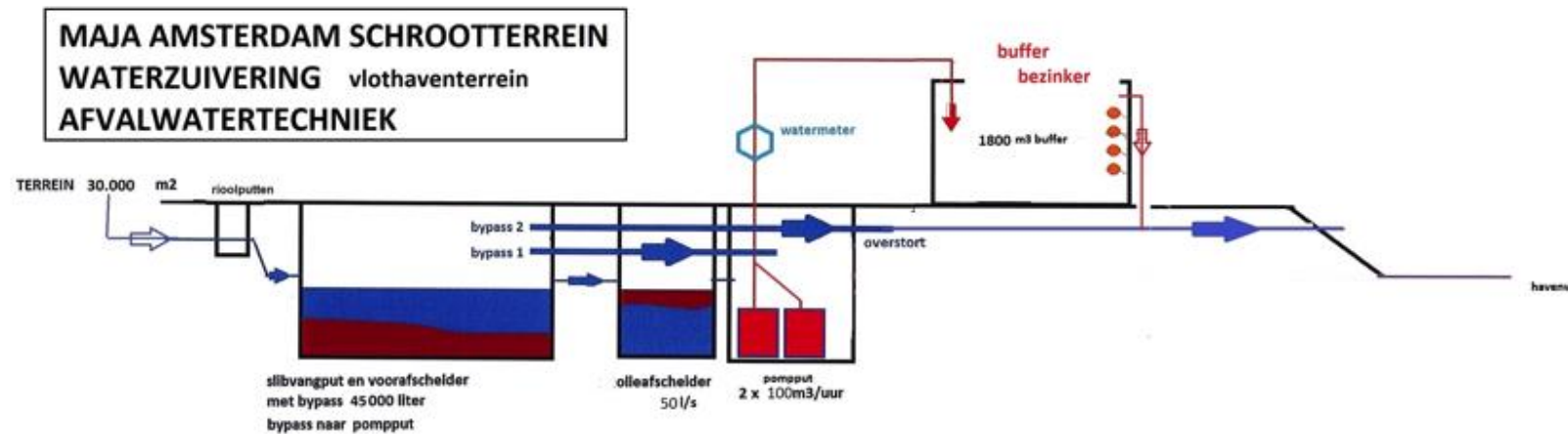
Watermanagement, dustcontrol and preparing fire fight

Watertight floors dewater into a tank of 45 m³ underground, taking the first debris out of the water.

The water passes an oil separator and is pumped with a 2 100 m³-hr pump to a waterbassin of 1800 m³ to clean for small particles, excess water is then released into the port.

This water is monitored for contaminants.

The water from the basin is used for dust control by spray guns.





Questions?