

Landfill Miner Guide



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SPAQuE

Objectives:

- Building awareness of the advantages of the LFM
- Explaining the process from identification of LFM projects to their execution

For who?

- policy makers
- local/ national governments
- landfill owners
- service providers
- consulting engineers
- education and research institutes

LANDFILL MINER GUIDE



<https://www.nweurope.eu/media/13061/rawfill-landfill-miner-guide.pdf>

I. RATIONALE OF RAWFILL PROJECT

II. RECALL OF THE CONCEPT OF ELFM, CONCEPTUAL SITE MODEL

III. LEGAL FRAMEWORK AND PERSPECTIVES

IV. WASTE SAMPLING AND ANALYSIS

V. GEOPHYSICAL IMAGING

VI. ENHANCED LANDFILL INVENTORY FRAMEWORK - ELIF

VII. DECISION SUPPORT TOOLS : Cedalion and ORION

VIII. RECOMMENDATIONS FOR LANDFILL MINING WORKS ON SITE

IX. WASTE VALORIZATION

X. HOW TO REHABILITATE A LANDFILL AFTER MINING

XI. STAKEHOLDER INVOLVEMENT

XII. INSPIRING EXAMPLES OF LANDFILL MINING

I. RATIONALE OF RAWFILL PROJECT - OVAM

- Basic principles of the linear economy
- Resources and reserves (UNFC)
- Scarcity, depletion and availability of resources: critical raw materials
- EU Flagship on resource efficiency
- Geogenic and anthropogenic resources
- Landfills and landfilling in a circular economy
- ELFM as an innovative concept

III. LEGAL FRAMEWORK + PERSPECTIVES - **OVAM**

- EU-legislation and impact on regional level;
- Waste management and/or Material management;
- Landfilling and landfill aftercare;
- Landfilling as temporary storage;
- Constraints of specific mining regulations in view of ELFM;
- Specific regulations on ELFM;
- Relationship with soil contamination legislation;
- Required Legislative framework to speed up ELFM;
- Initiatives and research: EP-seminar, COCOON, New-Mine, Smart Ground, Minea...

IV. WASTE SAMPLING AND ANALYSIS - ATRASOL

- Waste description
- Waste sampling plans
- Waste sampling methods
- Waste analysis

V. GEOPHYSICAL IMAGING – BGS + ULiège

- Introduction to geophysics
- Geophysical methods applied to landfill study
 - Principles and applications
 - Electrical methods
 - Electromagnetic methods
 - Seismic methods
 - Magnetic and gravimetric methods
 - Linking geophysics to landfill characteristics
- Survey design
 - Adjusting the survey to the objectives
 - Incorporating a priori information and type of landfill
 - Defining ground truth sampling strategy
- Contribution of geophysical methods to Resource Distribution Model

ANNEXE: Example of RDM construction by combining geophysics and other data

VI. ENHANCED LANDFILL INVENTORY FRAMEWORK (ELIF) - **ATRASOL**

- Existing inventories
- Why use the ELIF?
- ELIF field description
- Link between ELIF and geophysical imaging
- Link between ELIF and DST
- Examples

VIII. RECOMMENDATIONS FOR LANDFILL MINING WORKS ON SITE - **ATRASOL**

- Additional survey
- General organization of the works (on site/facilities)
- Elaboration of a business plan
- check lists
- safety/security
- waste digging
- waste preparation
- relandfilling
- communication plan with neighbors

X. HOW TO REHABILITATE A LANDFILL AFTER MINING – SPAQUE

- Assessment of the environmental and social factors
 - water quality
 - air quality
 - land value
- Rehabilitation methodology
 - EU Legislation
- sustainable management of landfills
- Land valorization

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XII. INSPIRING EXAMPLES
OF LANDFILL MINING -
SPAQUE

- Description of the site
- State of art
- Drivers to perform LFM
- Site investigations – methods used, results
- Excavations - waste characterization and analysis
- Technologies applied for waste separation
- Site remediation
- Final results
- Laws and regulations applied
- Budget
- Conclusion

Interreg



EUROPEAN UNION

North-West Europe

RAWFILL

European Regional Development Fund

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Thank you!