

# **Landfill Mining and Reclamation in Michigan**

**Department of Environmental Quality,  
Office of Waste Management and  
Radiological Protection**

# According to Wikipedia:

- **Landfill mining and reclamation (LFMR)** is a process whereby solid wastes which have previously been landfilled are excavated and processed.
- The concept of **LFMR** was introduced as early as 1953 at the Hiriya landfill near Tel Aviv, Israel.

# Common Goals of Landfill Mining:

- Containment of old waste .
- Recovery of valuable material.
- Reuse of land.

# Applicable State Requirements

**Part 115, Solid Waste Management**, of Act 451, 1994 PA 451 regulates solid waste in Michigan.

**Part 201, Environmental Response**, of Act 451, 1994 PA 451 establishes standards for contaminants in soil and groundwater.

# EXAMPLE: Wexford County Landfill



# AT WCLF, waste was removed:

- To prevent further leaching from unlined cell.
- To maximize future airspace.
- Was authorized under a Remedial Action Plan and Construction Permit under Part 115.

# State Requirements

**Part 115, Solid Waste Management**, requires a permit for any new disposal area, including any **solid waste processing plant**.

**Processing** is defined as “changing the physical or chemical character of solid waste by separation, treatment, or other methods...”

# EXAMPLE: MOA Landfill Authority

- DEQ staff conducted an **advisory analysis** of a processing plant at the licensed landfill to convert waste to energy (initially by landfill mining).
- More significant issues are air permitting and economics.

# Typical LF Mining Concerns

- Odors from waste excavation.
- Leachate migration.
- Unknown waste hazards.

# Risk Scale for Landfill Mining

Licensed

Unlined

Industrial

MSW

Waste LF

Site

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Low

High

Risk

Risk

# Low Risk Example:

The DEQ has approved mining of low hazard industrial waste from licensed landfills with a simple change to the Operations Plan



# High Risk Example

Proposal to mine metals from closed MSW landfill near Flint



# Considerations at Closed Sites

- Liner Design.
- Restrictive Covenant.
- Licensing History under Part 115.
- Financial Assurance.
- Effect on Post-Closure Period.

# Considerations at Closed Sites II

At unlicensed landfills or ones where post-closure period has ended, reopening creates a new disposal area requiring a permit, unless activity is otherwise authorized via an Order, Exemption, or other DEQ approval.