Waste Disposal Act: Waste Regulations and Permitting

Department of Waste Management
05/22/2019
Outline

- Introduction and current situation
- The disposal of general waste
- The disposal of industrial waste
- Industrial waste report regulations and management
- Conclusion
Introduction and current situation
General Waste Management Evolution

1988 EPR Introduced

1991
- Construction Plan for Solid Waste Resource Recycling (Incineration) Plant
- 21 Incineration Plants of Public Owners (Planning 22 plants, finishing 21 plants)

1996 Measures for Encouraging Publicly or Privately Owned Organizations (BOO/BOT) to Construct and Operate Incinerators
- 5 Incineration Plants of Private Owners (Planning 15 plants, finishing 5 plants)

1997 Four-in-One Recycling Program

2000 Per-Bag Trash Fee in Taipei

2001 Food Waste Recycling

2003 Bulky Waste Recycling

2005 Mandatory Garbage Separation

2010 Sustainable Materials Management


※21 Incineration Plants of Public Owners (Planning 22 plants, finishing 21 plants)
※5 Incineration Plants of Private Owners (Planning 15 plants, finishing 5 plants)
Industrial Waste Management Evolution

1980 Legal system establishment
- Have full understanding of waste production
- Help the establishment of waste clearance and disposal organization
- Establish “Standards for Defining Hazardous Industrial Waste” and “Methods and Facilities Standards for the Storage, Clearance and Disposal of Industrial Waste”

1990 Industrial Waste Minimization
- Establish “Industrial Waste Minimization Rule”
- Diversify the industrial waste processing methods
- Open reuse approaches for industrial waste management

2000 Regulatory tool reinforcement
- Establish the Industrial Waste clearance Way (Disposal, Recycle)
- Establish 「Industrial Waste Control Center」
- Establish Waste clearance GPS tracking system
- Promote the Establishment of Eco-Industrial Park program

2010 Zero Waste
- Promote the Industrial Waste Recycling
- Report the recycled product flow online
- Solve the incombustible -Waste clearance way
- Establish Sustainable Materials Management

2018 Circular Economy
- Promote resource recycling program and implement circular economy policy
Waste Statistics of Taiwan

Waste generated in 2018: 32.07 Mt

- General Waste: 9.74 Mt (daily garbage)
  - Other: 4.32 Mt
  - Recycled: 4.83 Mt
  - Food Waste: 0.59 Mt
- Industrial Waste: 22.33 Mt
  - General: 20.77 Mt
  - Hazardous: 1.56 Mt

Recycling: 69.6%
- Landfill: 30.4%
- Incineration: 44%
- Reuse: 49%
- Process: 7%
- Export: 7%

On-site storage: 9.96%
Waste management framework

Designated Renewable Resources

- Y
  - Resource Recycling and Reuse Act
    - Renewable Resources
      - Recycle
      - Reuse

- N
  - Waste Disposal Act
    - General Waste
      - Responsibilities of authorities
        - Regulated recyclable waste
          - Recycling sectors subsidized by Recycling Fund Management Board
    - Industrial Waste
      - Responsibilities of enterprises
        - Recycled and disposed by local governments
          - Reuse
        - Self-clearance and disposal
        - Joint clearance and disposal
        - Commissioned clearance and disposal
        - Other methods
Waste Classification

General waste

Refers to waste that is not industrial waste
Clearance liability: the enforcement authority shall be responsible for the collection, clearance and disposal; on the other hand, manufacturers, importers or vendors shall bear responsibility for regulated recyclable waste.

Industrial waste

Refers to waste that is produced from industry activities (but excluding waste generated by the employees themselves), including “hazardous industrial waste” and “general industrial waste.”
Hazardous industrial waste: waste produced by industry that is toxic or dangerous with the concentration or volume sufficient to influence human health or pollute the environment.
General industrial waste: waste produced by industry that is not hazardous industrial waste.
Clearance liability: self-clearance and disposal, Joint clearance and disposal, Commissioned clearance and disposal.
The disposal of general waste
Article 15,16 Regulated recyclable waste

- For articles and the packaging and containers thereof that, after consumption or use, are sufficient to produce general waste possessing one of the following characteristics and cause concern of serious pollution to the environment, the manufacturer or importer of the articles and the packaging and containers thereof at issue or the manufacturer or importer of the raw materials shall bear responsibility for recycling, clearance and disposal and the vendor shall bear responsibility for recycling, clearance work. (I. Difficult to clear or dispose of. II. Contains a component that does not readily decompose over a long period. III. Contains a component that is a hazardous substance. IV. Is valuable for recycling and reuse.) (Article 15)

- Responsible enterprises shall register with the competent authority; a manufacturer, based on the manufacturing volume for the current quarter, and an importer, based on the import volume reported to customs, shall, within fifteen days after the reporting and payment of business taxes every quarter, pay recycling, clearance and disposal fees in accordance with the fee rates approved by the central competent authority; these fees shall be used for the Resource Recycling Management Fund and a financial institution shall be commissioned for the collection and safekeeping of the fees; the central competent authority shall determine the collection, safekeeping and utilization regulations thereof. (Article 16)
Resource recycling - Regulated Recyclable Articles

Pursuant to article 15, paragraph 2 of the Waste Disposal Act, the regulated recyclable articles can be divided into two categories: containers and items; and further subdivided into 33 items of 13 categories.

### Containers
- Iron container
- Aluminum container
- Glass container
- Paper container
- Plastic container
- Pesticide waste container

### Items
- Dry cell
- Motor vehicle
- Tire, Lead battery
- Information items
- Electronic appliances
- Light source
The disposal of industrial waste
Relevant provisions on Permission

Article 28 Disposal methods for the industrial waste
Article 31 Industrial waste disposal plan
Article 38 Permission and management of the import, export, transit and transshipment of industrial waste
Article 39 Permission and management of the reuse of industrial waste
Article 41,42 Permission of waste clearance and disposal organization
Disposal of Industrial Waste

Article 39

Industrial Waste

Reuse

central industry competent authorities

Self-clearance and disposal

Joint clearance and disposal

Commissioned clearance and disposal

Generator industry competent authorities

Public or private waste clearance and disposal organization

Enforcement authority

Waste clearance and disposal facility established either by the industry competent authority or through its help

Waste clearance and disposal facility established by a designated public enterprise

Clearance and disposal facility that has signed an investment contract pursuant to the Promotion of Private Participation in Infrastructure Projects Act

Surplus disposal capacity in an industrial waste disposal facility

Other methods permitted by the central competent authority

Waste export (Article 38)
Article 28 Industrial waste disposal method

• The disposal of industrial waste, with the exception of that subject to reuse methods, shall be performed in accordance with the following methods:
  • Self-clearance and disposal.
  • Joint clearance and disposal
  • Commissioned clearance and disposal
  • Other methods that receive central competent authority’s permission.

• Facilities operated for the clearance and disposal of general waste or general industrial waste shall not simultaneously clear or dispose of hazardous industrial waste.
Article 28 Employment of professional technical personnel

- Enterprises designated and officially announced by the central competent authority shall employ professional technical personnel.

- For the enterprises adopting self-clearance and disposal of their waste, the management regulations governing the conditions, permission, permission deadlines and cancellation of the clearance equipment and disposal facilities and other matters required to be complied with shall be enacted by the central competent authority in conjunction with the central industry competent authority.
Article 31 Industrial waste disposal plan

Enterprises of a certain scale that are designated and officially announced by the central competent authority shall perform the following matters within a certain time period demanded by the official announcement:

Operations may begin only after the review and approval of an industrial waste disposal plan submitted to the special municipality, county or city competent authority or the organization commissioned by the central competent authority; this regulation shall also apply to the modification of matters related to the production and disposal of industrial waste.
After the review and approval of an industrial waste disposal plan

Operations may begin only after the review and approval of an industrial waste disposal plan submitted to the special municipality. All settings shall be completed before declaration. And the consistency with the industrial waste disposal plan shall be confirmed. Be sure to be consistent with the industrial waste disposal plan.
Waste Disposal Plan

|--------------------|-----------------------------|-------------------------------------------------|----------------------------------|-------------------------------|

<table>
<thead>
<tr>
<th>次序</th>
<th>製程代碼</th>
<th>廢棄物</th>
<th>廢棄物(公噸/月)</th>
<th>貯存設施容量 (立方或平方米)</th>
<th>清除清潔方式</th>
<th>中間處理方法</th>
<th>再利用管理方式</th>
<th>最終處置方式</th>
<th>產生廢棄物</th>
<th>清除頻率</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>123</td>
<td>A</td>
<td>10</td>
<td>20</td>
<td>集中清除</td>
<td>檢測管控方式</td>
<td>養殖</td>
<td>一般</td>
<td>例行</td>
<td>低</td>
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</table>

[Table continues with relevant waste information]

[Diagram with annotations for each column in the table]
Article 38 The import, export, transit and transshipment of industrial waste

- The import, export, transit and transshipment of industrial waste may commence only after receipt of permission granted by the special municipality, county or city competent authority; for hazardous industrial waste, additional approval from the central competent authority is necessary. However, wastes that are officially categorized as industrial raw material by the central competent authority after consultation with the industry competent authority are not subject to this provision.

- Hazardous industrial waste shall give priority to domestic treatment and recycling and can only be exported to member countries of the Organization for Economic Co-operation and Development, or countries which signed bilateral agreement with the Republic of China for transboundary movement of hazardous industrial waste in accordance with international convention, or other states/regions that are announced by central competent authority. The waste disposal organizations of the state of import shall be capable of performing follow-up treatment and recycling in environmentally sound manner.

- The management regulations for the qualifications of the applicant, documents, review, permission, permission deadlines, cancellation and other binding matters for import, export, transit and transshipment of the industrial waste in the foregoing 2 paragraphs shall be determined by the central competent authority.
The import, export, transit and transshipment of industrial waste

Article 38 (Revisions on June 14, 2017.)

- Management Regulations for the Import and Export of Industrial Waste (2018.03.31)
  - permit application procedures
- Types of Industrial and General Wastes Banned from Importation (2014.12.05)
  - banned
- Industrial Wastes Required as Materials for Industrial Use (107.10.04)
  - No import/export permit required
- Agreement between the Association of East Asian Relations and the Interchange Association for the Control of Transboundary Movement of Hazardous Wastes and their Disposal (2005.12.30)
  - Notification procedures with Japan
General waste that is subject to the international conventions

Industrial raw material

Hazardous industrial waste

No application for import/export permit is required

Apply to the local competent authority for import and export permit documents

General waste that is subject to the international conventions
Article 39 Reuse of industrial waste

- **Reuse of industrial waste (§39)**
  - Reuse of industrial waste shall be processed in accordance with the regulations stipulated by the central industry competent authorities or central competent authority, and shall not be restricted by Article 28 or Article 41.
  - The management regulations governing the category, quantity, permission, permission deadlines, cancellation, records, declaration and labeling of the reused products of the reuse industrial waste referred to in the foregoing paragraph and other matters required to be complied with shall be enacted by the central industry competent authority in consultation with the central competent authority and the reuse industry competent authority. However, when the industrial waste involves the reuse of two or more industries, the central competent authority is responsible for enacting a unified regulation for reuse categories and management methods if considering it necessary.

- **Whereabouts and environmental monitoring (§39-1)**
  - The central industry competent authority shall be responsible for the whereabouts of the reuse products which are designated by the central competent authority, and shall conduct environmental monitoring when necessary when:
    I. The reuse products are used in sea or land reclamation;
    II. The reuse products are used improperly and are likely to endanger the environment or human health; or
    III. The central competent authority considers it necessary to strengthen the control of such reuse products.
Main ways of reuse

1. **In-plant reuse**
   - Enterprise designated and officially announced (Article 31)
     - Stable by nature
     - Mature reuse technology
     - Widely used
     - In-plant reuse may commence upon the approval of waste disposal plan by the competent authority

2. **Announcement reuse (A total of 84)**
   - Enterprise not designated and officially announced
     - Announcement of reuse types and management methods
     - It may be reused in accordance with the regulations of management mode

3. **Permitted reuse**
   - Submit an application to the industry competent authority
     - Reuse after approval
Article 41,42 waste clearance and disposal organization

• Enterprises that engage in waste clearance or disposal shall submit public or private waste clearance and disposal organization permission applications to the special municipality, county or city competent authority or organization commissioned by the central competent authority, and only after the permission is granted shall the organization be commissioned for the clearance and disposal of waste.(§41)

• The management regulations for conditions, self-owned facilities, classification, hiring of professional technical personnel, permission, permission deadlines, cancellation of permission, suspension of work, suspension of business, termination of business, resumption of business and other binding matters for public or private waste clearance and disposal organizations in Paragraph 1 of the foregoing article shall be determined by the central competent authority.(§42)
Permit Management Regulations for Public or Private Waste Clearance and Disposal Organizations

Establishment stage
- Clearance organization: those that apply for clearance permits shall apply to the issuing authority at the location of the organization. (§4)
- Disposal organization: apply to the issuing authority at the location of the disposal site or plant

Agreed to set up → Test run → Permit applications (§4, §10)

Operation stage
- Clear and manage the equipment, tools and facilities of the organization (§17, §23)
- Processing institutions output resource products and derivative waste management (§19, §24)
- Clear up and deal with the provisions of the contract between the agency and the client (§20)
- Requirements for online filing and record keeping (§21, §22)
- Clear and manage technicians (§25)

Decommissioning stage
- Application for cancellation of license (§26)
- The issuing authority may revoke or annul its license provisions (§27)
Clearance Permit management

Clearance vehicle and process

- **License application** (review before approval)
- **Operating regulations** (Post-approval management)

<table>
<thead>
<tr>
<th>Clearance vehicle</th>
<th>Clearance process</th>
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<tbody>
<tr>
<td>List of clearance vehicle, and vehicle Purchase document</td>
<td>clearance vehicle Attendance, Storage and transport plan</td>
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<tr>
<td>Cooperation of survey</td>
<td>Declaration and retention of operating records</td>
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Disposal Permit management

From feeding, processing to product output

<table>
<thead>
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<th>License application (review before approval)</th>
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<tr>
<td>Formulate waste receiving quality criteria</td>
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<tr>
<td>Submit quality management plan</td>
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<tr>
<th>Operating regulations (Post-approval management)</th>
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<tr>
<td>Quality control and recording</td>
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<table>
<thead>
<tr>
<th>feeding</th>
<th>processing</th>
<th>product output</th>
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<tbody>
<tr>
<td></td>
<td>Operational plan</td>
<td>Formulate product standards plan</td>
</tr>
<tr>
<td></td>
<td>Production management record</td>
<td>Product quality control test and record</td>
</tr>
<tr>
<td></td>
<td>Monitoring equipment upgrade</td>
<td>Product declaration and tracking</td>
</tr>
</tbody>
</table>
Product management

To make sure the use and flow of the resource products are in conformity with the permission documents, organizations are required to report and record information such as the use and flow.

- **Online declaration**
  - Name, use, output and flow information

- **Paper records**
  - Information such as flow direction and use shall be kept for review by the authorities

For resource products that are not sold directly to end-users, authorities may require the organizations to record and preserve information such as the flow of resource products to end-users.
Industrial waste report regulations and management
Enterprises of a certain scale that are designated and officially announced by the central competent authority shall perform the following matters within a certain time period demanded by the official announcement:

- In accordance with the format, items, content and frequency stipulated by the central competent authority, report to the special municipality, county or city competent authority via the Internet the circumstances regarding the production, storage, clearance, disposal, reuse, export, import, transit and transshipment of the waste at issue. However, those circumstances in which the central competent authority allows the submission of written reports shall not be subject to this restriction.
- Industrial waste clearance and transport machinery designated and officially announced by the central competent authority shall be installed with real-time tracking systems in accordance with the specifications designated by the central competent authority, and shall maintain normal operation.

- Those that perform the clearance and disposal of industrial waste produced by an enterprise designated and officially announced per Paragraph 1 shall file their declaration according to Paragraph 1, Subparagraph 2.
Waste flow tracking

Waste Generator
- Waste Disposal Plan
- Online Reporting

Clearance Organization
- Clearance Permit
- Clearance Reporting
- GPS Tracking
- Operation Record

Treatment or final disposal
- Treatment Permit
- Treatment Report
- Operation Record

Recycling Facility - reuse
- Recycling Permit
- Recycling Report

Waste Export
- Import/Export Permit
- Import/Export Report
Manifest Reporting & Confirmation

1. Manifest report online before the clearance of waste

2. Waste should be sent to treatment plant within 2 days after the transportation commences.

3. Manifest report online before the clearance of waste

4. Confirm the receipt of the waste within 1 day after the clearance of waste

5. Generator should confirm the contents of manifest with 84 hrs after the clearance of waste.

6. Report the situation of the waste within 1 day after the treatment is completed

7. Generator should confirm the waste situation within 35 days after the clearance of waste.

8. Manifest report online before the clearance of waste

9. Confirm the acceptance of the waste within 1 day after the clearance of waste

- Generator
- Transporter
- Treatment Plant
- Final Disposal Facility
GPS monitoring status

GPS shall be installed on the following equipment:

- Clearance vehicles belong to **class A** clearance organizations and **tank type clearance vehicles** belong to **class B and C** clearance organizations
- Clearance vehicles and their tail cars used to transport **controlled wastes**
The clearance organization scans the manifest barcode in the treatment plant.

The processor inputs weighing information at the treatment plant.

The clearance organization scans manifest barcode in the treatment plant.

The driver shall manually scan the barcode and input the vehicle load data.

Equipped with GPS system to manage clearance vehicles.
Industrial Waste Reporting System (IWRS)

- Industrial waste control center
- EPA
- Local EPB
- Industrial Park Management Bureau
- Bureau of Environmental Inspection

Audit

Audit Inquiry

Inspect

0800 free service line
1. Regulation consulting
2. Trouble Shooting
3. System operation Training

Industrial Waste Reporting Interface

- Reuse Permit
- Industrial Waste Database
- Permit Application
  - Disposal Treatment Permit
  - Waste Disposal Plan
  - Import/Export Permit

Waste Generator ➔ Clearance transporter ➔ TSDFs ➔ Final Disposal Facility
## Conclusion

### Taiwan's waste management system

<table>
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<tr>
<th>Producer responsibility</th>
<th>• Joint liability with the commissioned agency for the clearance of the waste</th>
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<tbody>
<tr>
<td>Permit management</td>
<td>• Implementation of prior control for waste disposal</td>
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<tr>
<td>Industrial waste disposal plan</td>
<td>• Strengthen the responsibility for waste sources management</td>
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<tr>
<td>Report management</td>
<td>• Effectively control the volume and flow direction of waste</td>
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<tr>
<td>Waste clearance and disposal organization management</td>
<td>• Ensure the sound management of final disposal of waste</td>
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THANK YOU