環境省
Ministry of the Environment

Part II

Guidelines for Specified Municipal Solid Waste/Specified Industrial Waste, etc.

(Tentative Translation)

Mar 2013, 2nd Edition

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Chapter 1 Summary

1.1 Definition of Terms

Definition of terms used herein is indicated below.

Term	Explanation
Act*	Act on Special Measures concerning the Handling of Environment Pollution by Radioactive Materials Discharged by the Nuclear Power Station Accident Associated with the Tohoku District - Off the Pacific Ocean Earthquake that Occurred on March 11, 2011 (Act No. 110 of 2011)
Ordinance*	Ordinance for Enforcement of the Act on Special Measures concerning the Handling of Environment Pollution by Radioactive Materials Discharged by the Nuclear Power Station Accident Associated with the Tohoku District - Off the Pacific Ocean Earthquake that Occurred on March 11, 2011 (Ordinance of the Ministry of the Environment No. 33 of 2011)
Countermeasure Area	The areas which are designated by the Minister of the Environment as requiring management of waste in the areas due to contamination of waste in the areas by radioactive materials discharged by the accident to a level requiring special controls (Act, Article 11, paragraph (1))
Waste in the Countermeasure Area	Waste within the countermeasure area (if the waste was carried out of the countermeasure area, including the waste carried out and excluding that determined by the Ordinance of Ministry of the Environment (Act, Article 13, paragraph (1)))
Designated Waste	Waste generated from water facilities, public sewerage, basin sewerage, industrial water facilities, incineration facilities, which are specified municipal solid waste disposal facilities or specified industrial waste disposal facilities and community effluent treatment systems, designated by the Minister of the Environment as not conforming to the requirements provided for in the Ordinance of Ministry of the Environment based on the survey of the administrators, etc., of the facilities with regard to the pollution state by radioactive materials discharged by the accident. For waste other than that, if waste is regarded as not conforming to the requirements provided for in the Ordinance of Ministry of the Environment as a result of survey by the possessor of the waste, waste may be applied to the Minister of the Environment to be designated as designated waste (Act, Article 16 ~ Article 18)
Specified Waste	Waste in the countermeasure area or designated waste (Act, Article 20)
Debris	In the Guidelines, it refers to the waste generated from the East Japan Great Earthquake (wreckage of buildings collapsed by the Earthquake and tsunami and cars and ships, etc., damaged by tsunami)
Contaminated Waste, etc.	Waste in the countermeasure area, designated waste or removed soil (Act, Article 46)
Measures including Decontamination of Soil, etc.	Removal of soil, fallen leaves and twigs, sludge piled up in waterways related to the contamination, prevention of spread of the contamination and any other measures, which are carried out for the soil, plants and structures, etc., contaminated by radioactive materials discharged by the accident (Act, Article 2, paragraph (3))
Removed Soil	Soil generated in connection with decontamination, etc., of the soil in the specific area for decontamination or decontamination zone (Act, Article 2, paragraph (4))
Removed Soil, etc.	Removed soil and waste generated from measures for decontamination (Act, Article 31, paragraph (1))
Measures for Decontamination, etc.	Measures for decontamination of the soil, etc., and collection, transportation, storage and disposal of the removed soil (Act, Article 25, paragraph (1))
Specific Area for Decontamination	The area designated by the Minister of the Environment as it is necessary for the national government to conduct decontamination, etc., due to significant environmental contamination by radioactive materials discharged by the accident in the area and for any other reasons (Act, Article 25, paragraph (1))
Decontamination Zone	Zone covered by the decontamination plan (Act, Article 35, paragraph (1))
Specified Waste conforming to the Standards	Specified waste whose total radioactive concentration by cesium-134, radioactive substance discharged by the accident and cesium-137, radioactive substance discharged by the accident, is recognized at below 8,000Bq/kg as a result of a survey of radioactive concentration of radioactive cesium by the method provided for in Article 20 (Ordinance, Article 23, paragraph (1))
Waste Management Act	The Waste Management and Public Cleansing Act
Waste Management Ordinance	The Waste Management and Public Cleansing Act, Enforcement Ordinance

*If the Act is compared with the Waste Management and Public Cleansing Act, the terms, “Special Measures Act” and “Special Measures Act Enforcement Ordinance” shall be used respectively.

1.2 Purpose of the Guidelines

The Guidelines explain the treatment standards for specified municipal solid waste and specified industrial waste and the maintenance and management standards for specified municipal solid waste disposal facilities and specified industrial waste disposal facilities.

Persons to be addressed are:

[1] Municipalities, municipal solid waste treatment enterprises, waste discharging enterprises and industrial waste treatment enterprises, etc., which manage specified municipal solid waste and specified industrial waste under the Waste Management Act and Special Measures Act.

[2] Builders, etc., who maintain and manage specified municipal solid waste disposal facilities or specified industrial waste disposal facilities under the Waste Management Act and Special Measures Act.

[3] Persons in charge of the local governments (municipalities or prefectures) having the authority of instruction and supervision over the standards.

The standards for collection and transportation shall be described in Chapter 2, the standards for interim treatment shall be described in Chapter 3 and the standards for landfill shall be described in Chapter 4, with explanation of the provisions and matters of note in the measures described in each item.

1.3 Summary of the System

Under the Act, the national government shall carry out collection, transportation, storage and treatment of the waste within the countermeasure area and the waste whose radioactive concentration of radioactive cesium exceeds 8,000Bq/kg (designated waste) as designated by the Minister of the Environment.

Although the Waste Management Act applies to waste that does not correspond to such waste in the countermeasure area and designated waste, applicable waste as defined under Article 23 of the Act which has been contaminated by radioactive cesium or those that might be contaminated shall be referred to as specified municipal solid waste and specified industrial waste. In treating specified municipal solid waste and specified industrial waste, in addition to the normal treatment standards under the Waste Management Act, it is necessary to comply with the treatment standards under the Special Measures Act.

Waste treatment facilities provided for specified municipal solid waste and specified industrial waste and waste disposal facilities located in certain areas shall be referred to as specified municipal solid waste disposal facilities and specified industrial waste disposal facilities. The owner, etc., of the facilities is required to maintain and manage the facilities in compliance with the maintenance and management standards under the Special Measures Act for the time being in addition to the maintenance and management standards under the Waste Management Act.

1.3.1 Range of Specified Municipal Solid Waste and Specified Industrial Waste

(Specified Municipal Solid Waste)

Ordinance Article 28

Waste as defined in the Ordinance of the Ministry of the Environment under the Act, Article 23, paragraph (1) shall be as follows:

(i) Any waste generated from measures for decontamination of the soil, etc., applicable to the land, etc., within the specific area for decontamination or decontamination zone;

(ii) Any soot, ash and burnt residue generated from incineration facilities that are treatment facilities for municipal solid waste (limited to the waste given below)

a. Any waste generated from incineration facilities located in Fukushima Prefecture that are treatment facilities for municipal solid waste

b. Any soot generated from any incineration facility which is an treatment facility for municipal solid waste located in Iwate Prefecture, Miyagi Prefecture, Yamagata Prefecture, Ibaraki Prefecture,

Tochigi Prefecture, Gunma Prefecture, Saitama Prefecture, Chiba Prefecture or Tokyo Metropolitan Government (excluding island areas);

(iii) Rice straw waste (limited to waste generated in Iwate, Miyagi, Fukushima or Tochigi Prefectures);

(iv) Compost waste (limited to waste generated in Iwate, Miyagi, Fukushima or Tochigi Prefectures); and

(v) Anything treated to dispose of any waste listed in the respective preceding items which does not fall under such waste categories.

(Specified Industrial Waste)

Ordinance Article 30

Waste defined in the Ordinance of the Ministry of the Environment under the Act, Article 23, paragraph (2) shall be as follows:

(i) Any waste generated from measures for decontamination of the soil, etc., applicable to the land, etc., within the specific area for decontamination or decontamination zone;

(ii) Waste prescribed under Article 7 that is generated by any water facility (limited to those listed in the following.)

(a) Any waste generated from any water facility located in Fukushima Prefecture

(b) Any waste generated from any water facility located in Miyagi Prefecture, Tochigi Prefecture or Gunma Prefecture, and dried using the sun drying equipment pertaining to the facilities concerned.

(iii) Generated sludge, etc., pertaining to any public sewerage or basin sewerage (limited to those listed in the following);

(a) Sediments such as sludge, etc., generated from a terminal treatment plant pertaining to any combined public sewerage or basin sewerage located in Fukushima Prefecture (limited to those incinerated using incineration equipment pertaining to such a terminal treatment plant).

(b) Sediments such as sludge, etc., generated from a terminal treatment plant pertaining to any public sewerage or basin sewerage located in Fukushima Prefecture, Ibaraki Prefecture, Tochigi Prefecture, Gunma Prefecture, Saitama Prefecture, Chiba Prefecture, Tokyo Metropolitan Government (excluding island areas) or Kanagawa Prefecture (excluding waste given in (a), and limited to waste (soot only) that has been incinerated using incineration equipment (excluding fluidized incineration equipment) pertaining to the terminal treatment plant concerned.)

(c) Sediments such as sludge, etc., generated from a terminal treatment plant pertaining to any combined public sewerage or basin sewerage located in Fukushima Prefecture (excluding waste given in (a), and limited to waste that has been dehydrated using dehydration equipment pertaining to the terminal treatment plant concerned.)

(iv) Any waste prescribed under Article 10 that is generated from any industrial water facility located in Fukushima Prefecture or Tochigi Prefecture;

(v) Any soot and dust, incinerated ash or other combustion residue generated from any incineration facility which is an industrial waste disposal facility (limited to the waste given below)

(a) Any waste generated from an incineration facility which is an industrial waste disposal facility located in Fukushima Prefecture;

(b) Any soot generated from an incineration facility which is an industrial waste disposal facility located in Iwate Prefecture, Miyagi Prefecture, Yamagata Prefecture, Ibaraki Prefecture, Tochigi Prefecture, Gunma Prefecture, Saitama Prefecture, Chiba Prefecture or Tokyo Metropolitan Government (excluding island areas);

(vi) Compost waste (limited to waste generated in Iwate, Miyagi, Fukushima or Tochigi Prefectures);

(vii) Anything treated to dispose of any waste listed in the respective preceding items which does not fall under such waste categories.

[Purpose of measures]

Specified municipal solid waste and specified industrial waste are defined as waste generated from facilities within a certain region in the Tohoku and Kanto areas, and waste generated from decontamination measures taken based on the Special Measures Act, "which is contaminated or may be contaminated by radioactive substances discharged by the accident" (refer to **Table 1-1** for details).

(1) Waste (decontaminated waste) generated from measures for decontamination of the soil etc. in the Specific Area for Decontamination or Decontamination Zone, including fallen leaves, pruned twigs, asphalt, etc., shall be specified municipal solid waste or specified industrial waste. However, waste generated in connection with measures, including decontamination of soil carried out in the countermeasure area etc., shall correspond to waste in the countermeasure area (specified waste) and not specified municipal solid waste or specified industrial waste.

(2) Sludge, incineration ash, etc., generated from the facilities set forth in **Table 1-1** (i) through (v) shall be specified municipal solid waste and specified industrial waste. Provided, however, that these facilities are required to measure the radioactive concentration of radioactive materials discharged by the accident under the Act, Article 16, and waste as designated by the Minister of the Environment in which the concentration of radioactive cesium exceeds 8,000Bq/kg shall be designated waste (specified waste).

Table 1.1: Specified Municipal Solid Waste/Specified Industrial Waste

Kind of Facilities	Kind and Nature of Waste	Iwate	Miyagi	Yamagata	Fukushima	Ibaraki	Tochigi	Gunma	Saitama	Chiba	Tokyo*	Kanagawa	Niigata*
(1) Water facilities	Dried sludge (sun-dried)		○		○	Δ	○	○	Δ	Δ	Δ		Δ
	Dehydrated sludge, dried sludge (non-sun dried)		Δ		○	Δ	Δ	Δ	Δ	Δ	Δ		Δ
(2) a. Public sewerage and basin sewerage (facilities discharging incinerated substances using incineration facilities)	Incinerated waste (for soot, this is limited to those generated from fluidized bed furnaces)				○	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	Soot generated by sources other than fluidized bed furnaces				○	○	○	○	○	○	○	○	
(2) b. Public sewerage and basin sewerage (facilities discharging dehydrated sludge)	Dehydrated sludge				○		Δ						
(3) Industrial water facilities	Dehydrated sludge Dried sludge		Δ		○	Δ	○	Δ	Δ	Δ	Δ		Δ
(4) Incineration facilities which are waste disposal facilities	Incineration ash and other burnt residue	Δ	Δ	Δ	○	Δ	Δ	Δ	Δ	Δ	Δ		
	Soot	○	○	○	○	○	○	○	○	○	○		
(5) Rural community sewerage systems	Dehydrated sludge Dried sludge				Δ								
	Waste rice straw	○	○		○		○						
	Waste compost	○	○		○		○						
-	Decontaminated waste	(Decontamination zone)											
-	Treated specified municipal solid waste/specified industrial waste	(No limitation of area)											

* Except for islands

*: Waste generated by facilities treating only sludge originating from combined sewerage facilities excludes specified municipal solid waste and specified industrial waste. However, soot generated by sources other than fluidized bed furnaces includes those generated by incinerating sludge originating from combined sewerage facilities.

○: Specified municipal solid waste and specified industrial waste

Δ: Specified municipal solid waste and specified industrial waste except for waste that are clearly discharged after Jan. 1, 2014.

1.3.2 Requirements of Treatment Facilities for Specified Municipal Solid Waste and Specified Industrial Waste (Interim Treatment Facilities)

(Specified municipal solid waste treatment facilities)
Ordinance Article 32
The requirements defined in the Ordinance of the Ministry of the Environment under the Act, Article 24, paragraph (1) shall correspond to either one of the following.

(1) Incineration facilities, melting facilities, thermal decomposition facilities or burning facilities for municipal solid waste provided for the treatment of specified municipal solid waste.
(2) In addition to (1), incineration facilities, melting facilities, thermal decomposition facilities or burning facilities for municipal solid waste located in Iwate, Miyagi, Yamagata, Fukushima, Ibaraki, Tochigi, Gunma, Saitama, Chiba Prefectures or Tokyo Metropolitan Area (excluding island areas) (excluding those corresponding to requirements as laid out and approved by the Minister of the Environment).

(Specified industrial waste treatment facilities)
Ordinance Article 34
The requirements defined in the Ordinance of the Ministry of the Environment under the Act, Article 24, paragraph (2) shall correspond to either one of the following.

(1) Facilities cited in the Waste Management Act, Article 7, item (i), item (iii), item (v), item (viii), item (xi)-(b), item (xii) or item (xiii)-(b), and those provided for the treatment of specified industrial waste.
(2) In addition to (1), incineration facilities, melting facilities, thermal decomposition facilities or burning facilities for municipal solid waste located in Iwate, Miyagi, Yamagata, Fukushima, Ibaraki, Tochigi, Gunma, Saitama, Chiba Prefectures or Tokyo Metropolitan Area (excluding island areas) (excluding those corresponding to requirements as laid out and approved by the Minister of the Environment).

[Purpose of Measures]

This is to define the requirements of "Specified Municipal Solid Waste Treatment Facilities" in which the management and maintenance standards for such facilities apply and "Specified Industrial Waste Treatment Facilities" in which the management and maintenance standards for such facilities apply.

(1) Facilities corresponding to specified municipal solid waste treatment facilities and specified industrial waste treatment facilities irrespective of the region in which they are located (Ordinance Article 32 item (i), Article 34 item (i))
  [1] Treatment facilities for municipal solid waste listed below that are provided for the treatment of specified municipal solid waste
    - Incineration facilities
    - Melting facilities
    - Thermal decomposition facilities
    - Burning facilities
  [2] Treatment facilities for industrial waste given below that are provided for the treatment of specified industrial waste
    - Sludge dehydration facilities (Waste Management Act Article 7 item (i))
    - Sludge incineration facilities (excluding those for treating PCB) (item (iii))
    - Waste oil incineration facilities (excluding waste PCB) (item (v))
    - Waste plastic incineration facilities (excluding contaminated and treated PCB) (item (viii))
    - Melting facilities for industrial waste containing waste asbestos or asbestos (item (xi)-(b))
    - Incineration facilities for waste PCB, contaminated PCB or treated PCB (item (xii))

- Incineration facilities (excluding those listed in items (iii), (v), (viii) and (xii)) (item (xiii)-(b))

(2) Facilities corresponding to specified municipal solid waste treatment facilities or specified industrial waste treatment facilities other than those listed in (1) above (Ordinance Article 32 item (ii), Article 34 item (ii))

[1] Treatment facilities for municipal solid waste listed below that are located in Iwate, Miyagi, Yamagata, Fukushima, Ibaraki, Tochigi, Gunma, Saitama, Chiba Prefectures or Tokyo Metropolitan Area (excluding island areas) (excluding those corresponding to requirements* as laid out and approved by the Minister of the Environment).

- Incineration facilities
- Melting facilities
- Thermal decomposition facilities
- Burning facilities

[2] Treatment facilities for industrial waste listed below that are located in Iwate, Miyagi, Yamagata, Fukushima, Ibaraki, Tochigi, Gunma, Saitama, Chiba Prefectures or Tokyo Metropolitan Area (excluding island areas) (excluding those corresponding to requirements* as laid out and approved by the Minister of the Environment).

- Sludge dehydration facilities (Waste Management Act Article 7 item (i))
- Sludge incineration facilities (excluding those for treating PCB) (item (iii))
- Waste oil incineration facilities (excluding waste PCB) (item (v))
- Waste plastic incineration facilities (excluding contaminated and treated PCB) (item (viii))
- Melting facilities for industrial waste containing waste asbestos or asbestos (item (xi)-(b))
- Incineration facilities for waste PCB, contaminated PCB or treated PCB (item (xii))
- Incineration facilities (excluding those listed in items (iii), (v), (viii) and (xii)) (item (xiii)-(b))

*Ministry of the Environment Bulletin No. 105 dated Dec 28, 2011

[Checking Requirements]

(1) For soot, ash and other burnt residue that are generated by waste incineration facilities, the risk of contamination by radioactive substances such as soot, ash and other burnt residue discharged by the accident not complying with the standards prescribed under the Ordinance Article 14 must be low.

(2) Waste incineration facilities (excluding those prescribed under item (i)), waste melting facilities, thermal decomposition or burning facilities (excluding those corresponding to incineration facilities), or sludge dehydration facilities, that correspond to either one of the following.

a. For treated waste that is generated by waste disposal, the risk of contamination by radioactive substances discharged by the accident not complying with the standards prescribed under the Ordinance Article 14 must be low.

b. For exhaust gases that are discharged by waste disposal, it must be clearly observable that the 3-month average concentration of radioactive substances discharged by the accident at the discharge outlet will not pose any impediments in conserving the living environment.

c. For water effluent that is discharged by waste disposal, it must be clearly observable that the 3-month average concentration of radioactive substances discharged by the accident at the discharge outlet will not pose any impediments in conserving the living environment.

- The specific assessment guidelines of item (1) and item (2)-a stated above shall correspond to either [1] or [2] below.

  [1] The radioactive concentration of cesium 134 and cesium 137 in the waste shall be 800 Bq/kg or less in the measurement results of the most recent waste survey.

  [2] The radioactive concentration of cesium 134 and cesium 137 in the waste shall all be 6,400 Bq/kg or less in the measurement results of the 3 most recent waste surveys (limited to surveys

conducted over a period of at least 60 days)

- The radioactive concentration of cesium 134 and cesium 137 in the exhaust gas at the discharge outlet that is calculated using the following formula [1] shall not exceed 1 for 3 months continuously as a specific assessment guideline for item (2)-(b).
- The radioactive concentration of cesium 134 and cesium 137 in the water effluent at the discharge outlet that is calculated using the following formula [2] shall not exceed 1 for 3 months continuously as a specific assessment guideline for item (2)-(c).

[1]

$$\frac{^{134}\text{Cs conc}(\text{Bq/m}^3)}{20\ (\text{Bq/m}^3)} + \frac{^{137}\text{Cs conc}(\text{Bq/m}^3)}{30\ (\text{Bq/m3})}$$

[2]

$$\frac{^{134}\text{Cs conc (Bq/L)}}{60\ (\text{Bq/L})} + \frac{^{137}\text{Cs conc (Bq/L)}}{90\ (\text{Bq/L})}$$

Refer to "Measurement of radioactive cesium concentration in exhaust gas and water effluent" under "3.2.1 Contents of Standards for the Maintenance and Management of Specified Municipal Solid Waste and Specified Industrial Waste Treatment Facilities (Interim Treatment Facilities)" for details.

[Notes]

Municipal solid waste treatment facilities provided for the disposal of specified municipal solid waste prescribed under the Ordinance Article 28 (limited to incineration facilities, melting facilities, thermal decomposition facilities and burning facilities; similarly hereinafter) shall correspond to the Ordinance Article 32 item (i) and shall not be subject to this check. Similarly, industrial waste treatment facilities provided for the disposal of specified industrial waste prescribed under the Ordinance Article 30 (limited to incineration facilities, melting facilities and sludge dehydration facilities; similarly hereinafter) shall also correspond to the Ordinance Article 34 item (i) and shall not be subject to this check. Consequently, note that treatment facilities for municipal solid waste that are newly provided for the disposal of specified municipal solid waste after receiving this check shall be designated as a specified municipal solid waste treatment facility corresponding to the Ordinance Article 32 item (i) that is subject to the application of the special management and maintenance standards based on the Act Article 24. Similarly, treatment facilities for industrial waste that are newly provided for the disposal of specified industrial waste after receiving this check shall be designated as a specified industrial waste treatment facility corresponding to the Ordinance Article 34 item (i) that is subject to the application of the special management and maintenance standards based on the Act Article 24. Furthermore, note also that waste incineration facilities among these treatment facilities shall be subject to survey obligations based on the Act Article 16.

For facilities corresponding to the range of specified municipal solid waste prescribed under the Ordinance Article 28 and specified industrial waste as provided for under the Ordinance Article 30, even if the waste is generated in facilities that have received this check, this needs to be treated in accordance with the treatment standards based on the Waste Management Act and the special treatment standards based on the Special Measures Act.

[Withdrawal of Check]

Prior to the revision, when the risk of not conforming to the standards prescribed under Ordinance Article 14 due to the contamination by radioactive substance discharged by the accident is no longer deemed to be small, it is possible that checks may be withdrawn. In addition to the case concerned, when it is no longer clearly observable that the 3-month average concentration of radioactive substances discharged by the accident in the exhaust gas or water effluent at the discharge outlet will not result in impediments to the conservation of the living environment, checks may be withdrawn as well. Specific cases whereby checks may be withdrawn correspond to either one of the following cases.

1 When there is a drastic change in the waste treatment method in the facility concerned compared to the time when the survey results that formed the basis for receiving the check was obtained. For example, when the

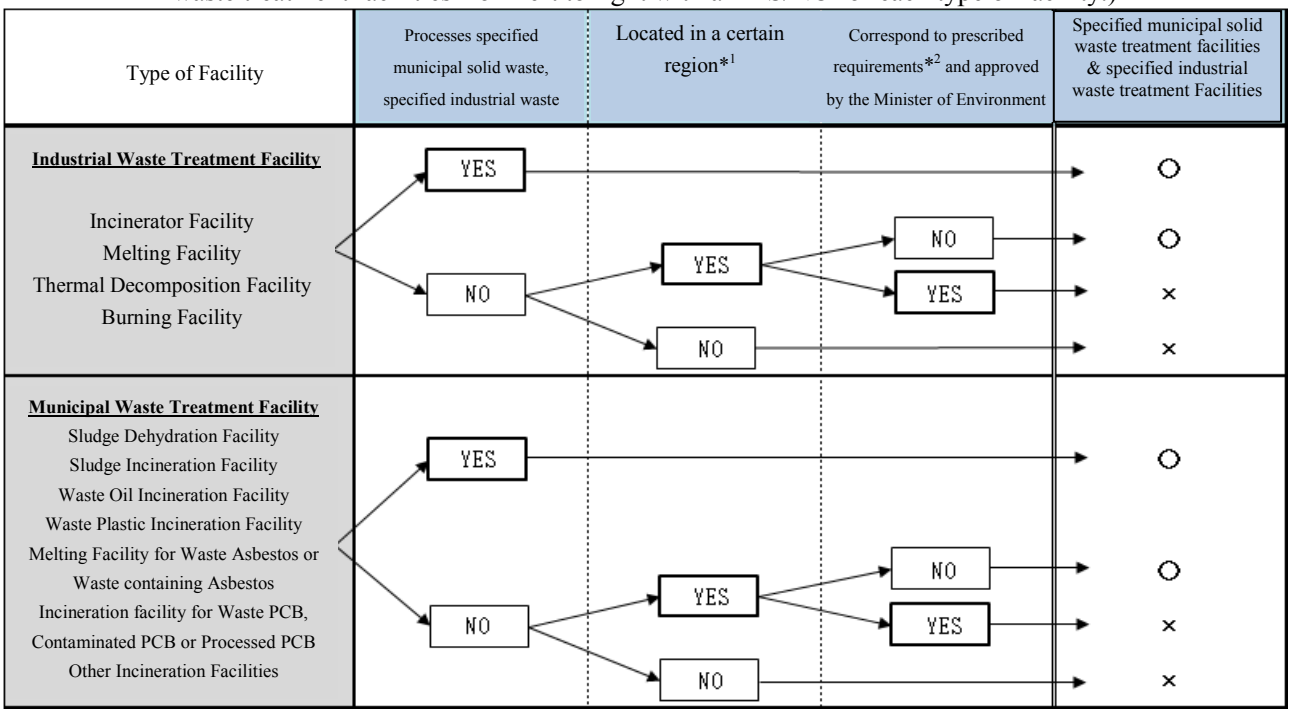
furnace in the incineration facility is repaired and the volume reduction ratio due to incineration increases as a result, or when a new melting process is added that results in fusion ash being discharged from the facility concerned as well.

2 When there is a drastic change in the type and characteristics of the waste being treated or due to be treated in the facility concerned compared to the time when the survey results that formed the basis for receiving the check was obtained. For example, when the proportion of sludge that may contain water flowing in from outside increases, or when the proportion of wood chips, waste plastic, grass and shrubs, branches and leaves etc. that are found outside increases.

Table 1-2 shows an outline of the requirements of treatment facilities for specified municipal solid waste and specified industrial waste

Table 1-2 Treatment facilities for specified municipal solid waste and specified industrial waste

(Note: Check the requirements shown in the flow chart for specified municipal solid waste and specified industrial waste treatment facilities from left to right with a YES/NO for each type of facility.)



*1: Iwate, Miyagi, Yamagata, Fukushima, Ibaraki, Tochigi, Gunma, Saitama, Chiba Prefectures or Tokyo (excluding island areas)

*2: Requirements for exclusion as a specified municipal solid waste or specified industrial waste treatment facility include the requirement that the risk of not conforming to the standards prescribed under the Ordinance Article 14 due to contamination caused by radioactive cesium in the residue of treated waste must be small, and the requirement that the 3-month average radioactive cesium concentration in the exhaust gas and water effluent must clearly not be observed to be impeding the conservation of the living environment. The details are as per the previous version (Ministry of the Environment Bulletin No. 105 dated Dec 28 2011).

○: Corresponds to a specified municipal solid waste or specified industrial waste treatment facility

×: Does not correspond to a specified municipal solid waste or specified industrial waste treatment facility

1.3.3 Requirements of a Specified Municipal Solid Waste Treatment Facility or Specified Industrial Waste Treatment Facility (Final Disposal Site)

(Specified Municipal Solid Waste Treatment Facility)
Ordinance Article 32
The requirements defined in the Ordinance of the Ministry of the Environment under the Act, Article 24, paragraph (1) shall correspond to either one of the following.

3. A final disposal site for municipal solid waste that is provided or due to be provided for the landfill of specified municipal solid waste.

(Specified Industrial Waste Treatment Facility)
Ordinance Article 34
The requirements defined in the Ordinance of the Ministry of the Environment under the Act, Article 24, paragraph (2) shall correspond to either one of the following.

3. A final disposal site for industrial waste that is provided or due to be provided for the landfill of specified industrial waste.

[Purpose of the Measures]
The definition of a final disposal site for the landfill of specified municipal solid waste and specified industrial waste shall not depend on the region but correspond to treatment facilities for specified municipal solid waste or specified industrial waste.

Chapter 2 Collection and Transportation Standards

2.1 Standards for Treatment of Specified Municipal Solid Waste and Specified Industrial Waste

[Summary of the System] Act, Article 23, paragraphs (1) through (2)

○ It is provided that a person who treats specified municipal solid waste or specified industrial waste shall comply with special treatment standards (Standards for Treatment of Specified Municipal Solid Waste and Standards for Treatment of Specified Industrial Waste), in addition to the standards for treatment of waste under the Waste Management Act.

2.1.1 Notices of Storage Sites

(Standards for Treatment of Specified Municipal Solid Waste)
Ordinance, Article 29, item (i)

When storing specified municipal solid waste during the collection or transportation of the specified municipal solid waste concerned, notice boards meeting the following requirements shall be put up in easily seen locations at the storage sites.

(a) The respective width and height must be 60 cm or more.
(b) Notices that indicate that the site is for the storage of specified municipal solid waste must be displayed.

(Standards for Treatment of Specified Industrial Waste)
Ordinance, Article 31, item (i)

The storage of specified industrial waste during the collection or transportation of the specified industrial waste concerned shall be governed by the provisions prescribed under Article 29, item (i).

When collecting or transporting specified municipal solid waste, besides Article 3, item (i) (treatment standards for municipal solid waste) and Article 4(2), item (i) (treatment standards for municipal solid waste under special management) of the Enforcement Ordinance in the Waste Management Act, the standards in Article 29, item (i) of the Enforcement Ordinance in the Special Measures Act also needs to be complied with.

When collecting or transporting specified industrial waste, besides Article 6, paragraph (1), item (i) (treatment standards for industrial waste) and Article 6(5), paragraph (1), item (i) (treatment standards for industrial waste under special management) of the Enforcement Ordinance in the Waste Management Act, the standards in Article 31, item (i) of the Enforcement Ordinance in the Special Measures Act also needs to be complied with.

Hereinafter, only applicable standards under the Enforcement Ordinance of the Special Measures Act (so-called stricter standards) in addition to the standards under the Enforcement Ordinance of the Waste Management Act shall be explained.

[Purpose of Measures]

When storing specified municipal solid waste or specified industrial waste for transshipment purposes during the collection and transportation of the specified municipal solid waste or specified industrial waste concerned, notice boards need to be put up to indicate that these sites are storage and transshipment sites for specified municipal solid waste or specified industrial waste.

[Examples of Measures]

Figure 2-1 shows an example of a notice board showing a storage site for the transshipment of specified municipal solid waste. This notice board can be an addition to the existing notice board prescribed under Article 3, item (i),(i)(1)(b) (including the examples under Article 6, paragraph (1), item (i)(e) and Article 6(5), paragraph (1),

item (i)(d)) or Article 4(2), item (i)(g)(1). The same shall apply to specified industrial waste.

In addition, the notice board needs to be installed in a location that is easily seen as shown in the example in **Figure 2-2**.

Over 60cm

Over 60cm

Specified municipal solid waste transshipment and storage facility	
Name or appellation of Administrator and Contact	XXXX Corporation Address: XXX Person responsible for Administration: Tel: XXX
Kind of stored specified municipal solid waste	Soot and dust, incineration ash
Maximum storage height	1.8m
Maximum storage amount	360m^3

Figure 2-1 Notice board at a storage and transshipment site (example)

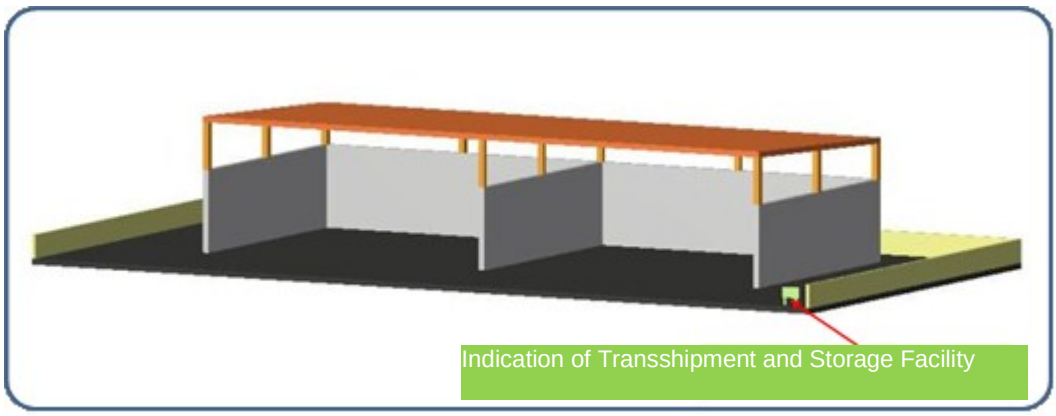


Figure 2-2 Installation location of a notice board at a storage and transshipment site (example)

Chapter 3 Interim Treatment Standards

3.1 Standards for the Treatment of Specified Municipal Solid Waste and Specified Industrial Waste

[Summary of the System] Act, Article 23, paragraph 1-2

○ Operators who are involved in the treatment of specified municipal solid waste and specified industrial waste must comply with the special treatment standards (treatment standards for specified municipal solid waste and specified industrial waste) in addition to the waste treatment standards based on the Waste Management Act.

3.1.1 Special Treatment Standards

(Treatment standards for specified municipal solid waste)
Ordinance Article 29, item (ii)

The disposal of specified municipal solid waste shall be carried out as follows (excluding landfill and ocean disposal; same for this item hereinafter).

(a) Using facilities equipped with exhaust gas treatment equipment such as filtration-type dust collectors that possess advanced functions for removing radioactive substances discharged by the accident in the exhaust gas that is generated when incineration, melting, thermal decomposition and burning of specified municipal solid waste is carried out.

(b) Disposal shall be carried out based on examples prescribed in the previous item when storing specified municipal solid waste.

(Treatment standards for specified industrial waste)
Ordinance Article 31, item (ii)

The disposal of specified industrial waste shall be carried out based on examples prescribed in Article 29, item (ii) (a) and (b) (excluding landfill and ocean disposal).

[Purpose of Measures]

Although radioactive cesium is partially vaporized together with the incineration, melting, thermal decomposition and burning of waste, it is subsequently agglomerated and absorbed mainly in the soot when the exhaust gas is cooled down. As such, facilities that perform incineration of specified municipal solid waste or specified industrial waste need to be equipped with treatment equipment that has a high level of efficiency in removing soot.

Also, in order to dispose specified municipal solid waste or specified industrial waste, when storing specified municipal solid waste or specified industrial waste, a notice board similar to the one in the previous paragraph "**2.1.1. Notices of Storage Sites**" needs to be installed to indicate that the storage site is for specified municipal solid waste and specified industrial waste.

[Example of Measures]
(Exhaust gas treatment equipment)

Exhaust gas treatment facilities with advanced functions that can remove dust effectively include bag filters (**Figure 3-1**) that can adequately remove dust containing radioactive cesium, electric dust collectors (**Figure 3-2**) equipped with equipment (activated charcoal blower, activated charcoal absorption tower, slaked lime blower or wet-type gas cleansing equipment) that have functions to raise the dust removal efficiency, etc.

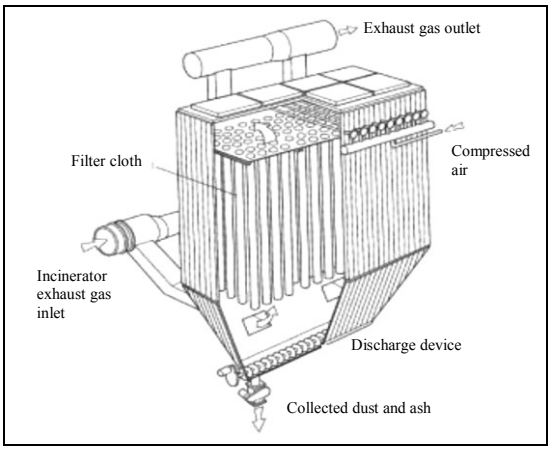


Figure 3-1: Bag Filter (Example)

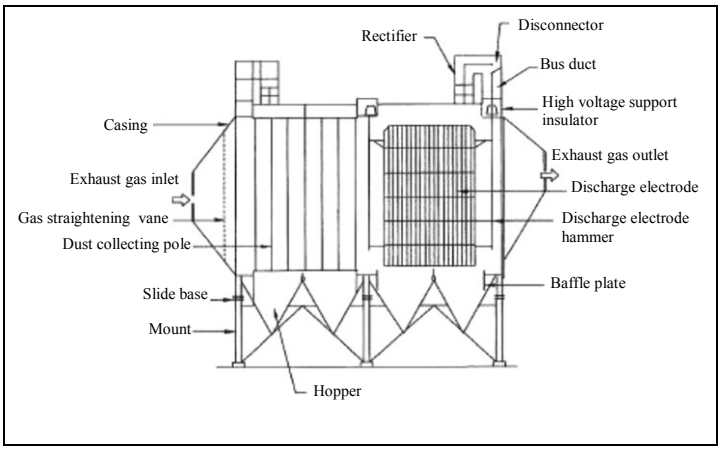


Figure 3-2: Electric Dust Collector (Example)

Source: Planning and Design Manual of Waste Disposal Facilities (National Urban Cleaning Conference)

(Reference) Removal of radioactive cesium using a bag filter

- Radioactive cesium that has migrated to the exhaust gas is cooled to suppress the generation of dioxins. It then condenses into mainly cesium chloride in the vicinity of the bag filter which has been cooled to about 200ºC or lower. After solidifying, it agglomerates and turns into soot together with the other substances. Therefore, if the soot can be removed, the radioactive cesium can also be removed at the same time. The average particle size of the soot is several tens of μm. Since the bag filter is able to cut off particles on the order of several tenths of μm, almost all the radioactive cesium can therefore be fully removed.
- Although there is no such thing as the filter cloth not breaking at all, in order to prevent such a situation from happening and the cloth from getting detached due to the weight and rise in pressure loss caused by the accumulation of soot on the filter cloth, a temporary reverse flow known as a "pulse jet" is applied in sequence to shake off the soot. While a slight drop in the filter effect can be expected during the shake off, a pre-coating is applied on the filter cloth to maintain the filter effect and thus it can be said that the impact will not be large. Moreover, since not all the filter cloths are shaken off at the same time but in sequence instead, the overall filter effect is therefore maintained.

(Source: National Institute for Environmental Studies "Appropriate Waste Treatment & Disposal as Seen from the Behavior of Radioactive Substances (Technical Data)")

(Points to note in the maintenance and management of exhaust gas treatment facilities)

(Understanding the performance of exhaust gas treatment facilities)

- Installing a densitometer and differential pressure gauge to check if there is any abnormality in the exhaust gas treatment facility is effective.
- When an abnormal value is detected in the densitometer, there is a risk that part of the filter cloth in the bag filter is damaged or an error may have occurred in the electric dust collector. Stop treatment immediately and adopt appropriate measures after performing an inspection.

(Inspection & maintenance of exhaust gas treatment facilities)

- When performing inspection, maintenance and replacement work for exhaust gas treatment facilities,

making sure that soot attached to the dust collector (filter cloth, dust collector) is shaken off fully is an effective to prevent the soot from flowing out and dispersing.

- After performing the inspection, maintenance and replacement work, using a vacuum cleaner fitted with a HEPA filter to remove the deposits where necessary is considered effective from a working environment control point of view.

(Notice board)

- **Figure 3-3** shows an example of a notice board indicating that the site is a storage site for specified municipal solid waste. The notice can also be added to existing notice boards. This is the same for specified industrial waste.

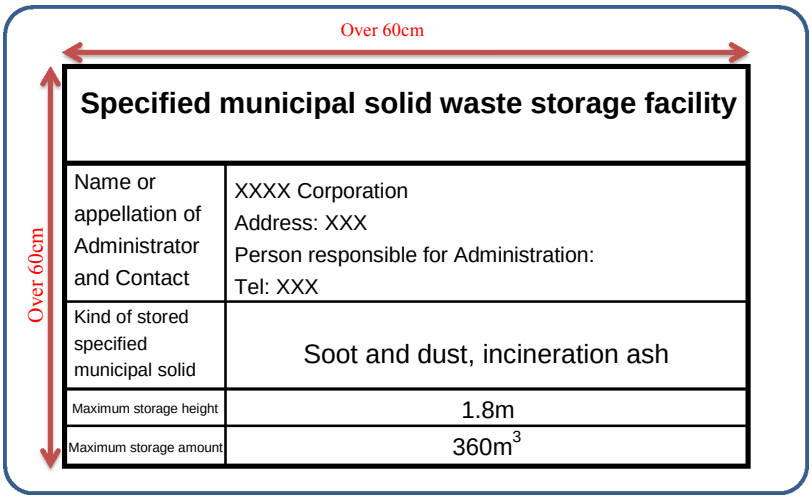


Figure 3-3: Notice board at Interim Treatment Facility (Example)

[Notes]

(Survey of contamination status due to radioactive substances discharged by the accident)

- As prescribed under the Act Article 16, paragraph 1, it is mandatory to survey the contamination status due to radioactive substances discharged by the accident on a routine basis and to report the results to the Minister of the Environment for soot, ash, etc. that are generated in incineration facilities provided for the disposal of specified municipal solid waste or specified industrial waste. When the survey results indicate that the concentration of radioactive cesium in the waste exceeds 8,000 Bq/kg, the waste shall then be known as designated waste.
- Measurement of the concentration of radioactive cesium in soot, ash, etc. shall be carried out using the method prescribed in “Part I Guidelines on Contamination Survey Methods”.

(Notes on treatment and operational control)

(Pre-treatment)

- When crushing waste to be fed into incinerators, using a low speed rotary crusher for solid waste, installing local dust collection equipment, cleaning up the surrounding areas using a vacuum cleaner fitted with a HEPA filter etc., are effective ways to prevent dispersion of dust etc.
- Where necessary, measuring the air dose rate in the vicinity at the end of the crushing can also be considered (soot treatment).
- To prevent dispersion of the soot, besides performing treatment in dedicated enclosed areas, measuring the air dose rate indoors where necessary and removing deposits with a vacuum cleaner fitted with a HEPA filter are effective ways to control the working environment.

3.2 Standards for Maintenance and Management of Specified Municipal Solid Waste Treatment Facilities and Standards for Maintenance and Management of Specified Industrial Waste Treatment Facilities

[Summary of the System] Act, Article 24, paragraphs (1) through (2)

○ It is provided that the owner, etc., of certain waste disposal facilities (specified municipal solid waste disposal facilities, specified industrial waste disposal facilities) shall, for the time being, comply with special maintenance and management standards (Standards for Maintenance and Management of Specified Municipal Solid Waste Treatment Facilities and Standards for Maintenance and Management of Specified Industrial Waste Treatment Facilities) in addition to the maintenance and management standards for facilities under the Waste Management Act.

3.2.1 Contents of Standards for the Maintenance and Management of Specified Municipal Solid Waste and Specified Industrial Waste Treatment Facilities (Interim Treatment Facilities)

Maintenance and Management Standards of Specified Municipal Solid Waste Treatment Facilities Ordinance Article 33

Technical standards for the maintenance and management of specified municipal solid waste treatment facilities defined in the Ordinance of the Ministry of the Environment under the Act, Article 24, paragraph (1) shall be as follows.

(1) Incineration facilities, melting facilities, thermal decomposition facilities and burning facilities for municipal solid waste shall comply with the followings.

(a) When exhaust gases generated by the disposal are discharged, the standards shall be as follows.

(1) The sum of the proportions of the 3-month average radioactive concentration in the atmospheric air around the work site given in Column 1 of the Attached Table 2 to the concentration given in Column 2 must be kept below 1 by monitoring the concentration of the radioactive substances discharged by the accident in the exhaust gas at the discharge outlet of the exhaust gas concerned.

(2) The concentration of the radioactive substances discharged by the accident in the exhaust gas concerned shall be measured and recorded at least once a month in accordance with the method as defined by the Minister of the Environment under Article 25, paragraph (1) item (v)(b).

(b) When water effluent generated by the disposal is discharged, the standards shall be as follows.

(1) The sum of the proportions of the 3-month average radioactive concentration in the public waters around the work site given in Column 1 of the Attached Table 2 to the concentration given in Column 3 must be kept below 1 by monitoring the concentration of the radioactive substances discharged by the accident in the exhaust gas at the discharge outlet of the exhaust gas concerned.

(2) The concentration of the radioactive substances discharged by the accident in the water effluent concerned shall be measured and recorded at least once a month in accordance with the method as defined by the Minister of the Environment under Article 25, paragraph (1) item (vi)(b).

(c) The amount of radiation at the plot boundary of the work site shall be measured and recorded at least once a week in accordance with the method as defined by the Minister of the Environment under Article 15, item (xi).

(d) Records for the items given below shall be drafted and retained for the period until the facility concerned is abolished.

(1) Type and quantity of specified municipal solid waste disposed

(2) Date of disposal for each type of specified municipal solid waste disposed

(3) Name and address of the party receiving each type of disposed specified municipal solid waste and

the party taking it out after disposal.

(4) Measurements as prescribed under (a)(2), (b)(2) and (c)

(Maintenance and Management Standards of Specified Industrial Waste Treatment Facilities) Ordinance Article 35

The technical standards for the maintenance and management of specified industrial waste treatment facilities as prescribed in the Ministry of the Environment Ordinance under the Act Article 24 paragraph (2) shall be as follows.

(1) Facilities listed under Article 7 item (i) in the Waste Management Act shall comply with the followings.

(a) Examples as prescribed under the provision in Article 33 item (i) (b) and (c).

(b) Record on the following items listed below shall be compiled and retained until the facility concerned is abolished.

(1) Type and quantity of disposed specified industrial waste

(2) Date of disposal for each specified industrial waste that has been disposed

(3) Name and address of the location accepting the disposed specified industrial waste and the delivery location after disposal.

(4) Measurements based on the provisions under Article 33 item (i)(b)(2) and (c) that are provided based on the examples prescribed under the provision in (c)

(2) Facilities listed in Article 7 item (iii), item (v), item (viii), item (xi)(d), item (xii) or item (xiii)(d) of the Waste Management Act shall be governed by the provisions prescribed under Article 33 item (i)(a) to (d).

[Purpose of Measures]

(Measurement of the concentration of radioactive cesium in the exhaust gas and wastewater)

- For specified municipal solid waste treatment facilities and specified industrial waste treatment facilities, checks need to be carried out to ensure there is no impact on the surrounding living environment and human health by measuring the concentration of the radioactive cesium in the exhaust gas discharged into the atmosphere and the wastewater discharged into public water areas at least once a month. For specified industrial waste facilities such as sludge dehydration facilities that do not generate exhaust gas, there is no need to measure the concentration of the radioactive cesium in the exhaust gas.
- Depending on the exhaust gas or wastewater generated during disposal, the concentration of the radioactive cesium in the air or public water areas around the worksite needs to be controlled to ensure that the average concentration over 3 months as calculated by the following equations (sum of the proportions of cesium 134 and cesium 137 to each of the concentration limit) must be kept below 1.

  Concentration of radioactive cesium in the air:

  Concentration of Cs134 (Bq/m^3)/20(Bq/m^3) + concentration of Cs137 (Bq/m^3)/30 (Bq/m^3) ≤ 1

  Concentration of radioactive cesium in public water area:

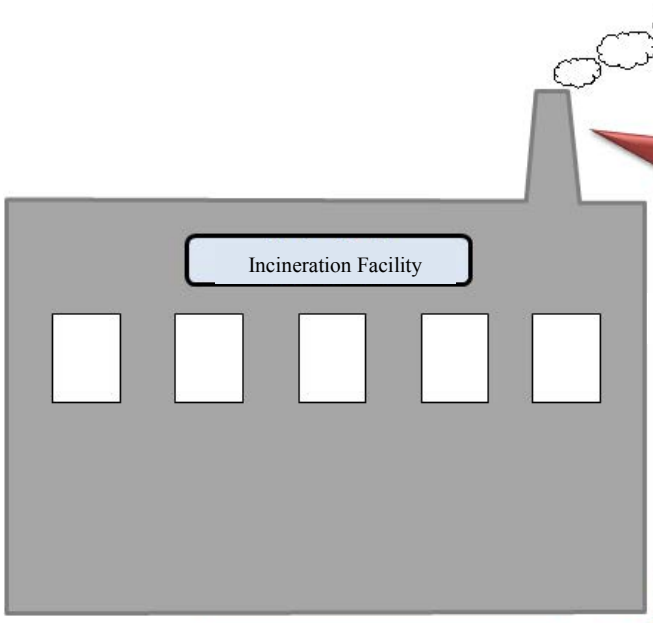
  Concentration of Cs134 (Bq/L)/60 (Bq/L) + Concentration of Cs137 (Bq/L)/90(Bq/L) ≤ 1

- The concentration of the radioactive cesium in the air around the business establishment shall be monitored by measuring the concentration at the smokestack or the dust collector outlet of the facility concerned. The measurement of the radioactive concentration and management of the measurement results shall be carried out in accordance with the method set forth in Chapter 3 of "Part V: Guidelines for Method of Measurement of Radioactive Concentration".
- The concentration of radioactive cesium in the water in stocking into the public water area around the

business establishment shall be monitored by measuring the concentration at the outlet of the facility. The measurement of the radioactive concentration and management of the measurement results shall be carried out in accordance with the method set forth in Chapter 5 of "Part V: Guidelines for Measurement Method of Radioactive Concentration".

(Reference)

- The concentration limit of radioactive cesium in the surrounding atmosphere and public water areas is set at 1mSv/year or less, which is the permissible limit that the general public can continue to be exposed to from age zero to seventy.
- According to the maintenance and management standards of an interim treatment facility based on the Special Measures Act, the concentration limit of radioactive cesium in the surrounding atmosphere and public water areas has to be complied with. In reality, the exhaust gas and water effluent is measured and monitored at the exhaust gas and water effluent outlets in order to comply with this limit.



Water effluent concentration is measured here.
→Monitor and keep the concentration of radioactive cesium. in the surrounding atmosphere under the concentration limit

Concentration limit of radioactive cesium in surrounding atmosphere

$$\frac{\text{Cesium-134 Concentration}}{20\ (\text{Bq/m}^3)} + \frac{\text{Cesium-137 Concentration}}{30\ (\text{Bq/m}^3)} \leqq 1$$

Permissible limit set at 1m Sv/year or less, which is the limit that a person can continue to be exposed to annually from age zero to seventy.

Water effluent concentration is measured here.
→Monitor and keep the concentration of radioactive cesium in the surrounding public water areas where the water is discharged to under the concentration limit

Concentration limit of radioactive cesium in surrounding public water areas

$$\frac{\text{Cesium-134 Concentration}}{60\ (\text{Bq/L})} + \frac{\text{Cesium-137 Concentration}}{90\ (\text{Bq/L})} \leqq 1$$

Permissible limit set at 1mSv/year or less, which is the limit that a person can continue to be exposed to annually from age zero to seventy.

(Measurement of Air Dose Rate)

- In order to check whether proper measures are taken for protection of people other than the people such as waste disposal operators who are involved in work from radiation, the air dose rate at the boundary of the premises of the business establishment conducting disposal needs to be measured and recorded. The measurement of the air dose rate and management of the measurement results shall be carried out in accordance with the method set forth in Chapter 2 of "Part V: Guidelines for Measurement Method of Radioactive Concentration".
- In this regard, background measurement shall be made at the boundary of the premises before the start of acceptance of the waste. Background measurement in the case of having already accepted the waste and the incineration facility etc. being in operation shall be made at the point sufficiently distant from

the facility concerned.

- Based on these measurements, it shall be confirmed that additional amount of radiations at the boundary of the premises does not exceed 0.19μSv/h (1mSv/year)[1]. In the nearby area where its air dose rate is relatively high, the value shall be controlled at the same level as the air dose rate near the boundary of the premises. In addition, the guidelines shall be adhered to in lowering the air dose as much as possible.

(Preparation and Retention of Records)

Preparation and retention of records is important for ensuring and maintaining the transparency of a series of flow of waste treatment and the records need to be retained until the facility is abolished.

[Example of Measures]

The retention place for records can be the office at the site, or if no office exists at the site, at the nearest office then.

The contents of the records include the kind, quantity, date of disposal, location of accepting facility, and the name and location of the delivering facility after treatment, etc., of the specified municipal solid waste or specified industrial waste. Among them, records of delivering facilities after treatment etc. can be managed for each vehicle carrying out the transport.

[Notes]

It is necessary to conduct a survey of the status of contamination of the generated soot and dust and incineration ash, etc., by radioactive materials discharged by the accident under the Act, Article 16 in incineration facilities for specified municipal solid waste or specified industrial waste.

If the results show that the concentration of radioactive cesium exceeds the designated standards under the Act, Article 17（8,000Bq/kg）, and if instructed as such by the Minister of the Environment, it should be noted that the waste shall be designated waste.

Naturally, it is necessary to note the provisions regarding discharge standards, measurement obligations, etc. that are prescribed under the environmental laws such as the Air Pollution Control Act, Water Pollution Control Act, Act on Special Measures against Dioxins, etc., for specified municipal solid waste treatment facilities and specified industrial waste treatment facilities.

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[1] Additional exposed amount of radiation of 1mSv/year presumes a life pattern in which a person spends 8 hours outside and stays 16 hours inside (wooden house with shield effect (0.4 times)) a day and if it is translated into the value per hour, it is assumed to be 0.19μSv/h from the following formula.
0.19μSv/h x (8h + 0.4 x 16h) x 365 =1mSv/year

Chapter 4 Standards for Landfill

4.1 Standards for the Landfill of Specified Municipal Solid Waste and Specified Industrial Waste

[Summary of System] Act Article 23 paragraphs 1, 2, Article 24 paragraphs 1, 2

○ Operators involved in the treatment of specified municipal solid waste and specified industrial waste must comply with the special treatment standards (specified municipal solid waste treatment standards, specified industrial waste treatment standards) in addition to the treatment standards and maintenance and control standards for waste under the Waste Management Act for the time being.

<Summary of standards pertaining to landfills of specified municipal solid waste and specified industrial waste>

A summary of the standards pertaining to landfills of **specified municipal solid waste** and **specified industrial waste** is given in **Figure 4-1.** A comparison with the landfill standards under the Waste Management Act is given in Section **4.1.1** while an explanation of the contents is given in Section **4.1.2**.

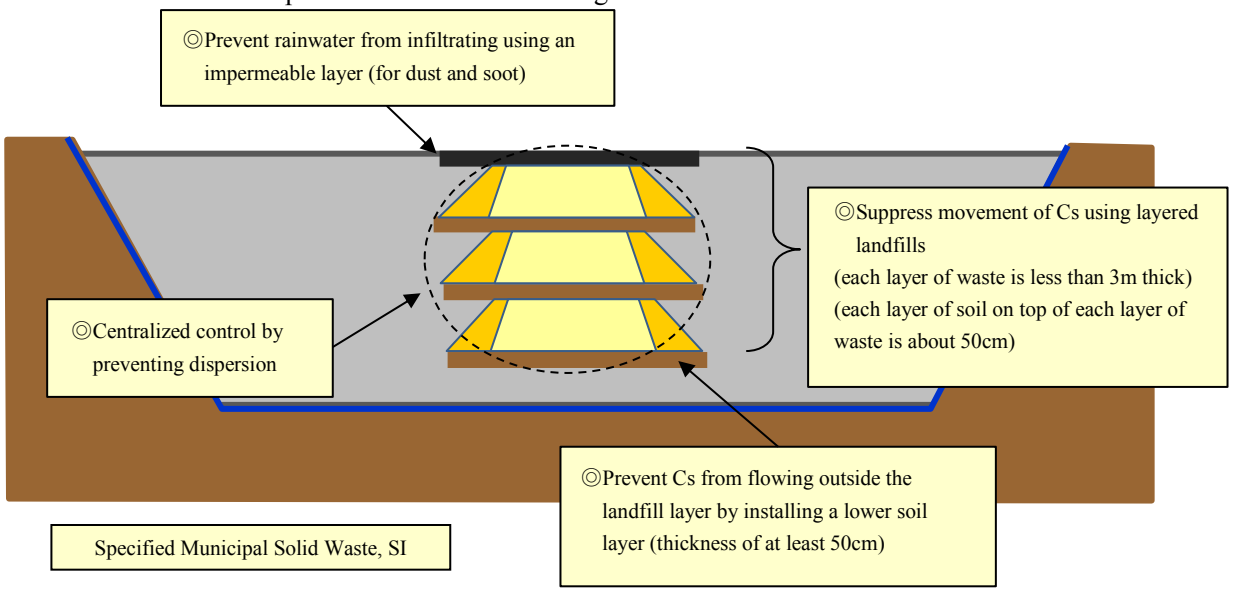


Figure 4-1 Summary of standards pertaining to landfills of specified municipal solid waste and specified industrial waste

4.1.1 Comparison with the Landfill Standards of the Waste Management Act

In carrying out landfill of specified municipal solid waste or specified industrial waste, the treatment standards and maintenance and management standards under the Waste Management Act shall apply and the special treatment standards and special maintenance and management standards provided for in the Special Measures Act, Enforcement Ordinance shall also apply.

For the standard provided for in the Waste Management Act and the standard provided for in the Special Measures Act, the summary shall be organized by item as shown in **Table 4-1**.

In this regard, since some forms of radioactive cesium contained in soot and dust may be easy to elute, measures need to be taken to prevent infiltration of rainwater into the land when reclaiming soot and dust (**Table 4-2)**.

Table 4-1: Summary of the landfill standards under the Waste Management Act and the Special Measures Act

		Landfill standards under the Waste Management Act*	Landfill standards under the Special Measures Act (stricter standards) *
Landfill Standards	Indication	Enclosing the area Indicate that the area is for the disposal of specified municipal solid waste or specified industrial waste	Indication that it is the place of disposal of specified municipal solid waste or specified industrial waste
	Method	Disposal methods using underground space cannot be used	—
		—	Lay one layer of soil at least 50cm thick underneath the layer of waste (total thickness if there are 2 layers of soil)
		(Excluding waste incinerated below an ignition loss of 15%) Cover with a layer of soil (earth and sand) 50cm thick for each layer of waste that is 3m thick or less.	(Excluding waste incinerated below an ignition loss of 15%) Cover with a layer of soil 50cm thick for each layer of waste that is 3m thick or less.
		(For waste containing asbestos) Ensure there is no dispersion at a fixed location during landfill Take necessary measures such as covering the surface with soil to prevent dispersion and flow out	(Not limited to waste containing asbestos) Ensure there is no dispersion at a fixed location during landfill
		(For sludge) Take measures to keep the water content below 85% through incineration or thermal decomposition beforehand	—
		(For soot and dust, infectious waste etc.) Comply with standards stipulated in advance by the Minister of the Environment	—
		(For soot and dust) Refer to **Table 4-2**	(For soot and dust) Refer to **Table 4-2**
	Equipment, Management etc.	Installation of equipment to prevent pollution by water effusion (seepage control, collector drain, effusion treatment equipment, prevention of inflow by surface runoff) Other measures (maintain quality of discharged water and fringe underground water)	—
		Ensure that rats do not inhabit the landfill, and that mosquitoes, flies and other harmful insects do not breed	—
	Measures at the completion of landfill	Cover the surface by sand and seal the openings	—
Maintenance and management standards	Groundwater measurement	Groundwater inspection item, dioxins shall be measured before commencing landfill and at least once a year Electric conduction rate or chlorine ions shall be measured before commencing landfill and at least once a month	Concentration of radioactive cesium shall be measured before commencing landfill and at least once a month
	Stocking water measurement	Wastewater standard item, dioxins shall be measured at least once a year. pH, BOD, COD, SS, and T-N shall be measured at least once a month.	Concentration of radioactive cesium shall be measured at least once a month.
	Measurement of air dose rate	—	Radiation levels at the boundary of the landfill site shall be measured at least once in 7 days (after completion of landfill, at least once a month)
	Records	Kind and quantity of landfill substances, maintenance and management inspections,	Kind and quantity of landfill substances, date of landfill disposal, measurement for maintenance

		inspections and content of measures (When municipal solid waste containing asbestos is reclaimed, the landfill location drawing shall be retained)	and management, inspection records and content of measures, landfill location drawing
	Retention of Records	To be retained until the facility is abolished.	To be retained until the facility is abolished.

*This is just a summary. Refer to the provisions under the Waste Management Act and Special Measures Act for details.

Table 4-2: Summary of the landfill standards under the Waste Management Act and the Special Measures Act (for soot and dust)

	Landfill standards under the Waste Management Act	Landfill standards under the Special Measures Act (stricter standards)
Landfill of soot and dust	Take necessary measures in advance such as adding water, solidifying, enveloping, etc. to prevent the soot and dust from dispersing into the atmosphere. Take necessary measures to cover the surface with earth and sand to prevent the reclaimed soot and dust from dispersing or flowing outside the landfill.	Take necessary measures to prevent infiltration of rainwater into reclaimed soot and dust.

4.1.2 Contents of Standards (Ordinance, Article 29, Ordinance, Article 31)

(Standards for Treatment of Specified Municipal Solid Waste)
Ordinance, Article 29
The disposal standard for specified municipal solid waste prescribed by the Ordinance of the Ministry of the Environment as under the Act, Article 23, paragraph (1) shall be as follows:
(iii) Upon landfill disposal of specified municipal solid waste, comply with the following.

(Standards for Treatment of Specified Industrial Waste)
Ordinance, Article 31
Treatment standards for specified industrial waste provided for in the Ordinance of the Ministry of the Environment under the Act, Article 23, paragraph (2) shall be as follows.
(iii) Upon landfill disposal of specified industrial waste, comply with the following.

(1) Landfill
[1] Indication

(Standards for Treatment of Specified Municipal Solid Waste)
Ordinance, Article 29, item (iii)
(1) Landfill disposal shall be carried out as follows:
(1) It shall be carried out at a place indicated as a place for disposal of specified municipal solid waste;

(Standards for Treatment of Specified Industrial Waste)
Ordinance, Article 31, item (iii)
a. The provision of Article 29, item (iii), (a) shall govern.

[Purpose of Measures]

A notice indicating that the area is a final disposal site for specified municipal solid waste or the final disposal site for specified industrial waste needs to be put up at the site for the reclamation of specified municipal

solid waste or specified industrial waste.

[Example of Measures]

It is acceptable to add on to the existing notice for the final disposal site of municipal solid waste or industrial waste the indication that it is the final disposal site of specified municipal solid waste or the final disposal site of specified industrial waste as shown in **Figure 4-2.**

Final Disposal Site for Municipal Solid Waste Final Disposal Site for Specified Municipal Solid Waste			
Type of Municipal Solid Waste			
Period of Landfill	From	To	
Person-in-charge		Contact	

Final Disposal Site for Industrial Waste Final Disposal Site for Specified Industrial Waste			
Type of Industrial Waste			
Period of Landfill	From	To	
Person-in-charge		Contact	

Figure 4-2: Indication of Landfill Site (Example)

[2] Laying of under part of soil layer

(Specified Municipal Solid Waste Treatment Standards)
Ordinance, Article 29, item (iii)
(a) Landfill shall be carried out as follows.
(2) It shall be carried out at a place where a layer of soil which is 50 cm thick or thicker (in cases where two or more layers of soil are laid, this shall be the sum of the thickness of such layers) is laid within the Landfill Site.

(Specified Industrial Waste Treatment Standards)
Ordinance, Article 31, item (iii)
(a) Landfill shall be governed by the provisions prescribed under prescribed under Article 29 item (iii)(a).

[Purpose of Measures]

As radioactive cesium is easily absorbed by the soil, the purpose of the provision is to prevent outflow of radioactive cesium to the surrounding areas of the landfill by spreading a layer of soil about 50cm thick or more underneath the waste when reclaiming specified municipal solid waste or specified industrial waste.

[Example of Measures]
(When reclaiming on top of an existing layer of waste)

When reclaiming specified municipal solid waste or specified industrial waste on top of an existing layer of waste, a layer of soil at least 50cm thick needs to be laid underneath first. Compacting the existing waste layer sufficiently in advance or reinforcing the embankment (geo-textile method) before reclamation are effective ways to prevent uneven settling (**Figure 4-3**)

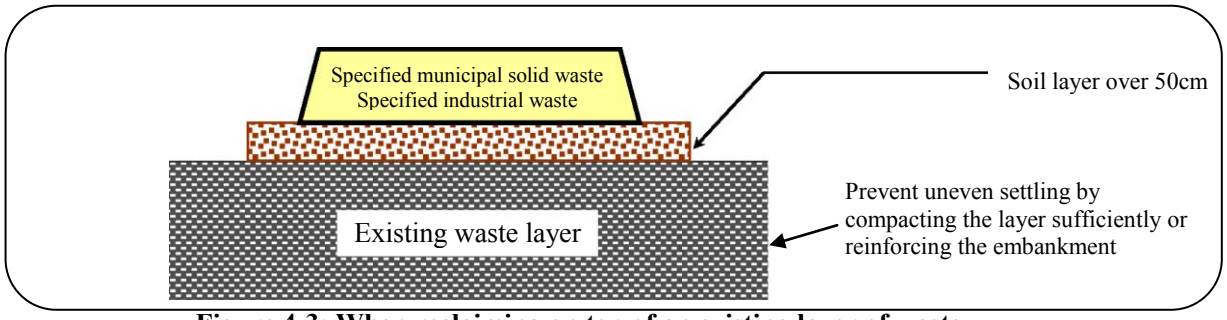


Figure 4-3: When reclaiming on top of an existing layer of waste

(Soil to be used)

○ When reclaiming specified municipal solid waste and specified industrial waste, the layer of soil that is laid underneath the waste prevents radioactive cesium from flowing out into the surrounding areas of the landfill by absorbing it even if it eluted. However, it is important to select a soil with an adequate permeability to allow the water to pass through and not stagnate so that the radioactive substance can be absorbed.

○ Take note of the following in selecting the soil to be used.

- The selected soil must comply with either one of the following standards.
  (a) While there are various kinds of soil, select one with a fine particle content of 5%~15%*[1] that can absorb radioactive cesium and one with a high water permeability (refer to the reference table).
  (b) Check that the soil has the appropriate adsorption capability*[2] by performing a radioactive cesium adsorption test*[3] etc.

*1 As radioactive cesium from the lower soil layer may leak from eluding water due to the coefficient of permeability being too large when the soil contains less than 5% sand and gravel, this is not suitable for use as the soil layer. On the other hand, clayish soil, etc., having an excessive amount of fine particles is also not suitable as it does not have an adequate level of permeability and the seepage water may stagnate on top of the soil layer.

*2 When soil with a high distribution coefficient is used, the passage of radioactive cesium is delayed substantially and the radiation can be expected to decay naturally. When absorption tests were conducted on silica sand No.5, Ibaraki sand and earth, Saitama soil and bentonite, the results indicate that the distribution coefficient was 4.52, 13.0, 34.4 and 64.1 respectively. In terms of the radioactive cesium absorption capability, bentonite was the highest followed by Saitama soil, Ibaraki sand and earth and silica sand No.5 (according to data from National Institute for Environmental Studies).

*3 Regarding the absorption test method, refer to the data on the absorption characteristics of radioactive cesium in soil etc. in the "Appropriate Waste Treatment & Disposal Based on the Behavior of Radioactive Substances (Technical Data)" by the National Institute for Environmental Studies.

→Mix radioactive cesium produced under certain conditions or the eluate of stable cesium with the soil in a container, shake horizontally and then determine the distribution coefficient of the soil (the larger it is, the higher is the absorption of radioactive cesium by the soil) from the amount of cesium absorbed by the soil after shaking and the equilibrium cesium concentration of the eluate then.

- If no proper soil can be found, use of an absorption layer made by mixing zeolite, etc., absorptive material, with the local originated soil, etc., can be considered.

(Notes on construction)

Take note of the following during construction.

- When laying the soil layer, spreading and compacting the stratified layers with a roller is effective in homogenizing the lower soil layer. However, be careful not to worsen the water permeability of the soil

layer by applying too much pressure on the roller.

- Carry out appropriate supervision of the construction to ensure that the soil layer is spread out evenly with the right thickness and finishing.
- During construction of the soil layer, be careful not to allow rainwater to soften and weaken the soil layer and allow the soil to flow out.

(Reference Table) Definitions of the Unified Soil Classification System in Japan

Simplified Category Name	Soil Name			Definition or Explanation			
Gravel	Gravel Rough gravel Medium gravel Fine gravel Sand gravel			Fine factions are less than 5%	Most particles are 2~75mm Most particles are 20~75mm Most particles are 5~20mm Most particles are 2~5mm Gravel containing considerable amount of sand		
	Silt Clay Organic soil Volcanic ash	Mix	Gravel Rough gravel Medium gravel Fine gravel Sand gravel	Fine factions are more than 5% and less than 15%	Fine factions are silt Fine factions are clay Fine factions are organic soil Fine factions are volcanic ash clay		
Gravel soil	Silt Clay Organic soil Volcanic ash	Quality	Gravel Rough gravel Medium gravel Fine gravel Sand gravel	Fine factions are more than 15% and less than 50%	Fine factions are silt Fine factions are clay Fine factions are organic soil Fine factions are volcanic ash clay		
Sand	Sand mixed with gravel Sand Rough sand Fine sand			Fine factions are less than 5%	Sand containing gravel Most of them are 74μm ~2.0mm Most of them are 0.42mm ~2.0mm Most of them are 74μm ~0.42mm		
	Silt Clay Organic soil Volcanic ash	Mix	Sand Rough sand Fine sand	Fine factions are more than 5% and less than 15%	Fine factions are silt Fine factions are clay Fine factions are organic soil Fine factions are volcanic ash clay		
Sandy soil	Silt Clay Organic soil Volcanic ash	Quality	Sand Rough sand Fine sand	Fine factions are more than 15% and less than 50%	Fine factions are silt Fine factions are clay Fine factions are organic soil Fine factions are volcanic ash clay		
Silt	Sandy silt Silt Clayish silt			Fine factions are 50% or more	Sand components are conspicuous	Dilatancy phenomenon is significant and degree of dryness is low	WL<50
					Sand components are not conspicuous	Middle of silt and silty clay	WL≥50
Clayish	Sandy clay Silty clay Clay				Sand components are conspicuous	Dilatancy phenomenon is not found and degree of dryness is medium	WL<50
					Sand components are not conspicuous		WL≥50
Organic soil	Organic silt Organic silt clay Organic soil clay Organic clay				Containing organic components and black or dark color and having organic smell	Inorganic components are silt Inorganic components are silty clay Inorganic components are sandy clayish soil	WL<50
	Andosol, Kanto loam (black), etc.					Inorganic components are clay	WL≥50
Volcanic ashy clay						In Inorganic components, volcanic ashy clay	
	Ash soil Loams in every region, including Kanto loam				Volcanic ashy clayish soil W<80 Volcanic ashy clayish soil WL≥80		
High organic soil	Peat, etc. Black mud, etc.			Fibrous high organic soil High organic soil decomposition of which progressed			

(Landfill Location)

- In order to prevent radioactive materials from eluting into water after landfill substances are immersed in rainwater, it is important to avoid reclaiming at a place where seeping water from the disposal site collects easily.
- When reclaiming at an existing final disposal site, it is important to reclaim on top of the existing waste layer instead of the under-most layer as it is necessary to avoid the sewage piping for the water eluding from the landfill site and the bottom of the slope of the disposal site as much as possible (**Figure 4-4**).
- It is also important to reclaim specified municipal solid waste and specified industrial waste at a location away from areas where it is easy for water to flow around the slope and gas venting equipment installed in the landfill site.
- In this regard, if landfill must be performed in a location where water tends to collect, it is important that the bottom be leveled by piling up waste or soil on the existing waste layer and the soil is laid over and filled (**Figure 4-5).**
- It is also effective to establish steps in between landfill layers so as to promptly remove rainwater to avoid contact by the reclaimed waste.
- When reclaiming specified municipal solid waste or specified industrial waste occupying a wide area within the disposal site, it is important not to directly fill up the bottom of the slope within the disposal site and the leachate collection pipes at the bottom of the disposal site but to install a layer of soil at the bottom and an intermediate layer of soil on top of each layer of waste. When the infiltration of rainwater is a concern in particular e.g. when there is a slope in the surrounding areas, it is important to take measures to prevent contact with rainwater even when reclaiming waste other than soot and dust.

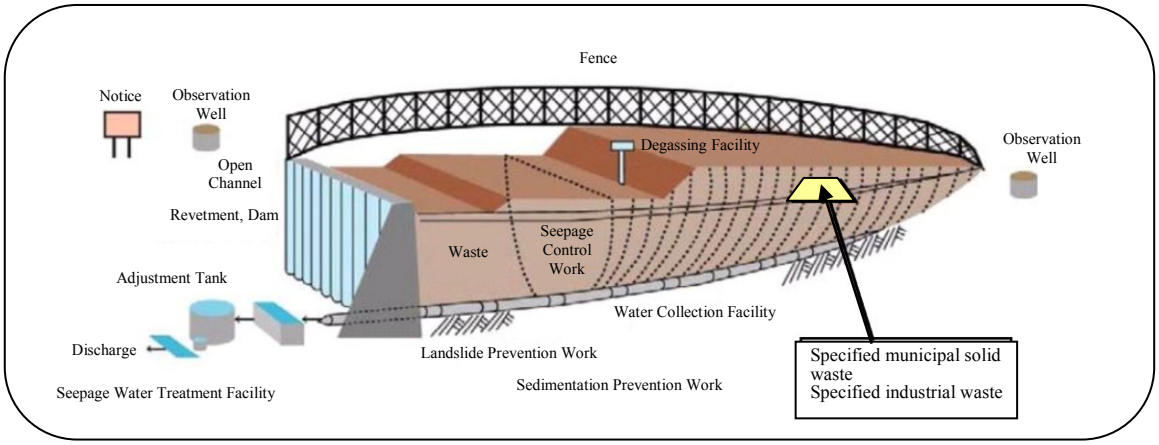


Figure 4-4: Example of Landfill Location at Existing Controlled Landfill Site for Domestic Waste and Industrial Waste

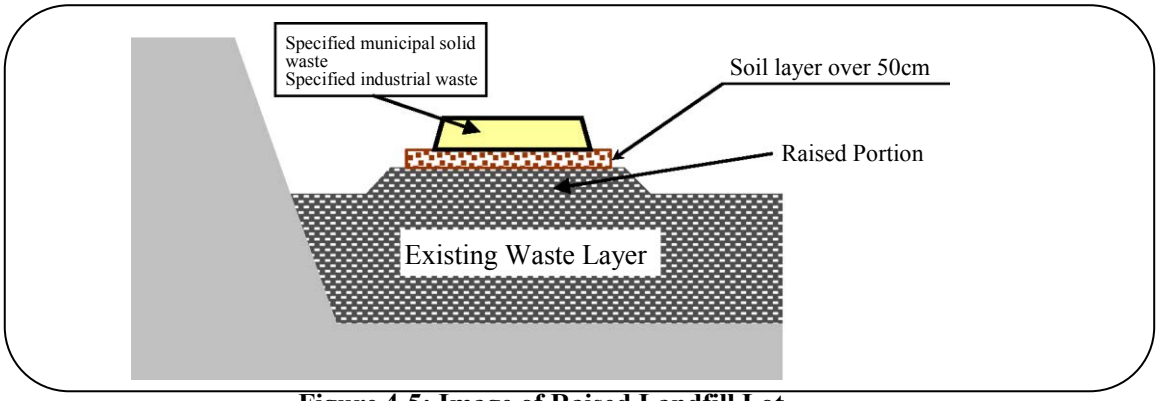


Figure 4-5: Image of Raised Landfill Lot

[3] Prohibition of Dispersion

(Specified Municipal Solid Waste Treatment Standards)
Ordinance, Article 29, item (iii)
(a) Landfill disposal shall be carried out as follows.
(3) It shall be carried out at a fixed place within the final disposal site and in a manner with which the specified municipal solid waste will not disperse.

(Specified Industrial Waste Treatment Standards)
Ordinance, Article 31, item (iii)
(a) Landfill disposal shall be governed by the provisions prescribed under Article 29 item (iii)(a).

[Purpose of Measures]

From the viewpoint of controlling the radioactive cesium in final disposal sites, it is necessary to carry out landfill disposal of specified municipal solid waste or specified industrial waste in a fixed area of the final disposal site so that the specified municipal solid waste or specified industrial waste does not disperse.

[Example of Measures]

- Besides having to stipulate a fixed area for the landfill site when reclaiming specified municipal solid waste or specified industrial waste, it is also effective to consolidate all the waste in a single location and to differentiate the area from other waste disposal areas for easier management of the landfill location.
- Therefore, an area of the disposal site may be demarcated as the landfill site by using soil to cover the boundary with other waste disposal areas. In this case, the soil used for the demarcation shall have the same 5%-15% fine fraction content as the soil used for the lower soil layer.
- The landfill site may be indicated with a sheet laid over the boundary so that its position can be identified even after the landfill (**Figure 4-6**).

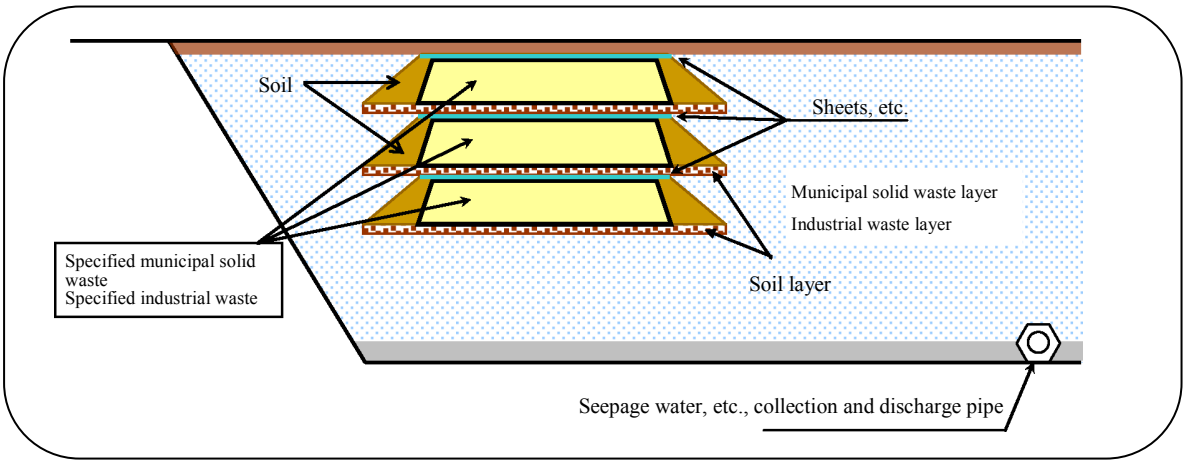


Figure 4-6: Image of Position of Landfill Lot (when reclaiming a certain section of the disposal site)

(2) Layered Landfill

(Specified Municipal Solid Waste Treatment Standards)
Ordinance, Article 29, item (iii)

(b) In cases where landfill disposal is carried out for any municipal solid waste (limited to specified municipal solid waste) that has been incinerated so that ignition loss is 15% or less, the thickness of one layer of such municipal waste shall be about 3 meters or less, and the surface of each such layer shall be covered with soil for about 50 cm.

(Specified Industrial Waste Treatment Standards)
Ordinance, Article 31, item (iii)

(b) In cases where landfill disposal is carried out for any industrial waste including specified industrial waste (excluding cases prescribed under the main clause of the Enforcement Order of the Waste Management and Public Cleansing Act (Cabinet Order No. 300 of 1971; hereinafter referred to as the "Waste Management Order"), Article 6, paragraph (1), item (iii), (l), the thickness of one layer of such industrial waste shall be about 3 meters or less, and the surface of each such layer shall be covered with soil for about 50 cm.

[Purpose of Measures]

From the viewpoint of suppressing the movement of radioactive cesium that has eluded during landfill disposal of specified municipal solid waste or specified industrial waste, each layer of waste needs to be kept under 3m thick with a layer of soil about 50cm thick laid over it regardless of the shape of the waste.

[Example of Measures]

- It is necessary to cover the surface of the waste with soil at certain intervals to ensure the radioactive cesium is absorbed by the soil. Under the treatment standards of the Waste Management Act, although it is provided for layered landfill by sand for municipal solid waste (except for waste which was incinerated to ignition loss of less than 15%) and corrosive industrial waste (except for waste which was incinerated to ignition loss of less than 15% and waste which was solidified using concrete), it is important to carry out layered landfill using soil when disposing specified municipal solid waste and specified industrial waste.
- Covering the waste with soil also has the effect of shielding radiation and preventing scattering of radioactive materials.
- In order to improve the stability of the landfill layers and limit the infiltration of water from the sides and the flow out of radioactive cesium, the width of the soil layer covering the reclaimed waste and the width of the lower soil layer (4.1.2(1)(2)) may have a horizontal margin of over 3m from the end of the landfill layer (waste) (to be constructed with care so that the soil at the sides does not flow out as a result of the reclamation of other waste) (**Figure 4-7**).
- The soil to be used shall be the same as that used for the lower soil layer (4.1.2(1)(2)) with a fine fraction content of 5%-15%.
- At the end of landfill work every day, it is effective to take appropriate measures such as covering the waste immediately with soil followed by a non-permeable sheet in order to prevent scattering of the waste and limit the permeation of rainwater.

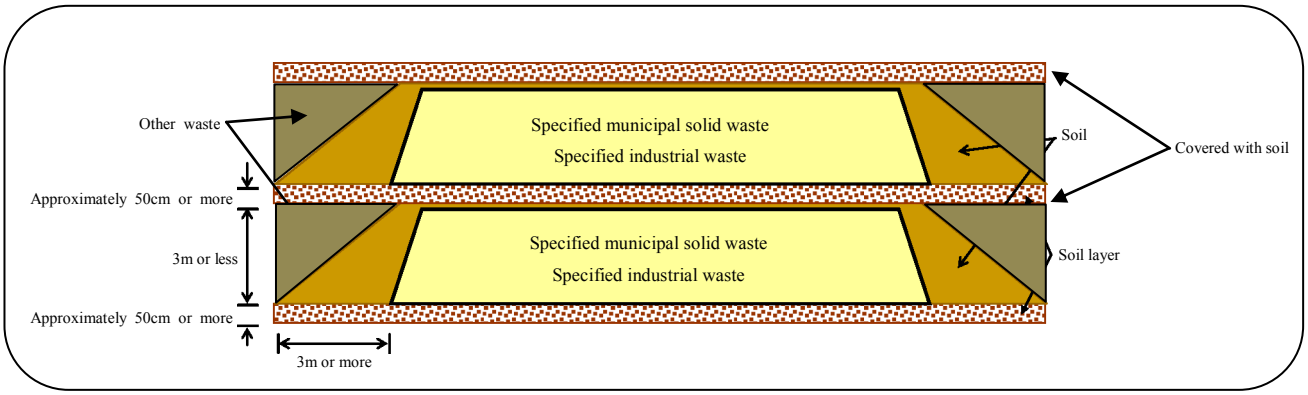


Figure 4-7: Image of Layered Landfill

(Matters of note etc. during construction)

・Take note of the following points during construction.

➢For soil at the sides, as the slope of the soil concerned will be exposed until such time other waste is reclaimed in the surrounding areas, measures to prevent infiltration by rainwater and steps to strengthen the slope needs to be taken so that the soil of the slope does not flow out and collapse due to rain etc.

(3) Landfill of Soot and Dust

(Specified Municipal Solid Waste Treatment Standards)
Ordinance, Article 29, item (iii)

(c) In cases where landfill disposal of any soot and dust (limited to specified municipal solid waste) is carried out, necessary measures shall be taken to prevent infiltration of rainwater into such soot and dust.

(Specified Industrial Waste Treatment Standards)
Ordinance, Article 31, item (iii)

(c) In cases where landfill disposal of any soot and dust (limited to specified industrial waste, except for waste generated from fluidized bed incinerators in the final treatment sites of public sewerage systems and regional sewerage systems) is carried out, the provisions of Article 29, item (iii), (c) shall govern.

[Purpose of Measures]

Since soot and dust may have high elution rates of radioactive cesium, when carrying out landfill disposal of soot and dust that is specified municipal solid waste or specified industrial waste, measures need to be taken to prevent infiltration of rainwater so that the radioactive cesium does not come into contact with the rainwater and flow out.

[Example of Measures]

As measures to prevent the infiltration of rainwater, it is effective to cover the surface of the reclaimed soot and dust with an impermeable layer (clayish soil layer with low permeability or a water isolation sheet*, etc.).

(Measures during Landfill)

If it is expected to rain, covering the surface with an impermeable sheet etc. is an effective means of limiting the infiltration of rainwater.

(Measures at completion of landfill of soot and dust)

- Upon completing the landfill of soot and dust, the upper part of the area that has been reclaimed with soot and dust needs to be covered with an impermeable layer* such as a water isolation sheet or clayish soil, etc., to prevent infiltration of rainwater into the landfill area.
- Furthermore, in order to limit the infiltration of water from the sides etc., the width of the impermeable

layer shall have a margin of over 3m from the end of the landfill layer of soot and dust.

- When the top of the impermeable layer is not going to be reclaimed with other waste, it is effective to establish an inclination angle of approximately 5% (or at least 2% even if it settles down) to allow the surface runoff to be discharged outside the landfill area when it rains (**Figure 4-8**).
- When the top of the impermeable layer is going to be reclaimed with waste other than soot and dust before the landfill is completed, it is effective to establish an inclination angle of approximately 5% (or at least 2% even if it settles down) in the layer of soil laid on top of the non-soot and dust waste layer to allow the surface runoff to be discharged outside the landfill area when it rains (**Figure 4-9**).

***Impermeable Layer**

A clay layer such as bentonite, etc., or synthetic resin and bentonite water isolation sheet, waterproof asphalt, etc., can be considered for use as the impermeable layer at the end of the landfill of soot and dust.

If bentonite mixed sand is used for the clayish soil layer, it is necessary to ensure that the coefficient of permeability is approximately 10-6cm/sec through managing the bentonite mixing ratio and sufficient compaction.

If a synthetic resin water isolation sheet is laid out, since the sheet may be damaged by protrusions and heavy machines running over it, measures to protect the sheet by installing a protective mat such as a non-woven cloth and laying a layer of soil over it etc. need to be taken. Furthermore, attention needs to be paid to the connecting seams (fusion) of the water isolation sheets.

(Other)

Landfill can be carried out effectively in areas where water will not collect easily using the cell method and then covering up the soil immediately.

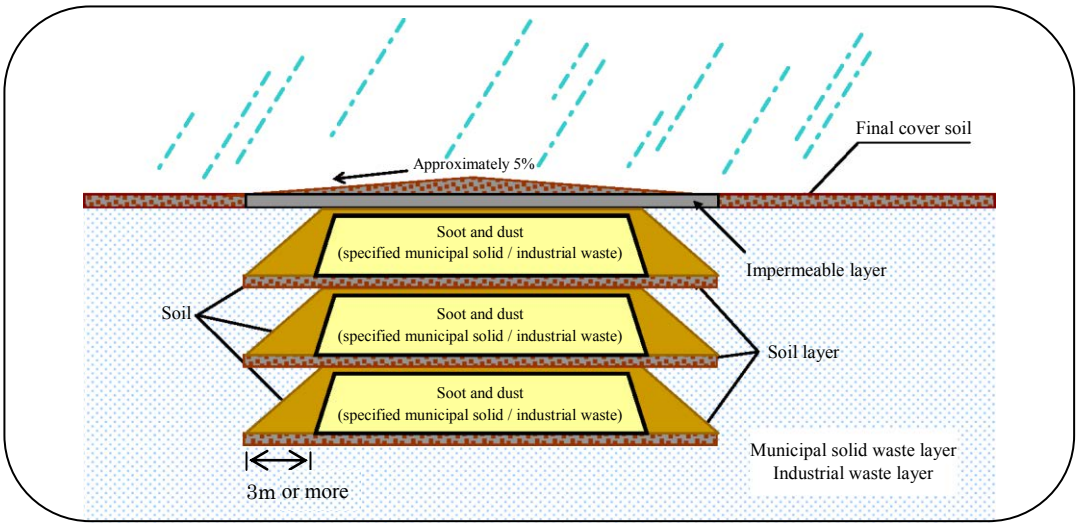


Figure 4-8: Image of Measures at the Completion of Landfill (1)

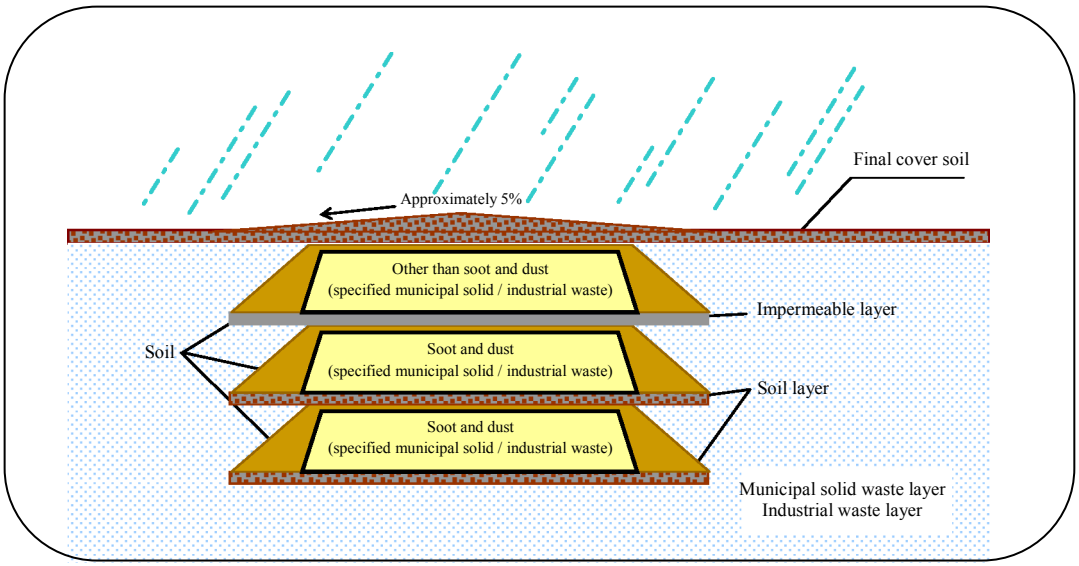


Figure 4-9: Image of Measures at the Completion of Landfill (2)

[Other Notes]

It is important to take the same measures for waste in which radioactive cesium may elude easily even if it is not soot and dust.

(4) Specified Municipal Solid Waste and Specified Industrial Waste which do not require Layered Landfill or Lower Soil Layer

(Specified Municipal Solid Waste Treatment Standards)
Ordinance, Article 29, item (iii)

(d) In the following cases, the standards specified under (a) (2), (b) and (c) shall not be applied.

(1) Only for the landfill disposal of specified municipal solid waste corresponding to the requirements* prescribed by the Minister of the Environment which does not pose a risk of contaminating the groundwater and public water areas as a result of radioactive substances discharged by the accident.

(Specified Industrial Waste Treatment Standards)
Ordinance, Article 31, item (iii)

(d) In the following cases, the standard specified under (c), which shall be governed by the provisions of Article 29, item (iii), (a), 2., (b), and (c), that shall be governed by the provision under the same item, (a), shall not be applied.

(1) Only for the landfill disposal of specified industrial waste corresponding to the requirements* prescribed by the Minister of the Environment under Article 29 item (iii) (d) (1).

[Purpose of Measures]

For waste that qualifies as waste that does not pose any risk of contaminating the groundwater and public water areas with radioactive cesium under provisions prescribed by the Minister of the Environment, measures that aim to prevent water contact and radioactive cesium flowing out do not apply since there is no risk that reclaiming this waste will contaminate the groundwater and public water areas.

*Ministry of the Environment Bulletin No. 6 dated Jan 27, 2012

There must not be any cesium 134 or cesium 137 detected in the test solution prepared in accordance with JIS K0058-1 “Test Method of Slag Chemical Substance – Part 1: Elution Test Method” that is measured using a germanium semi-conductor detector.

For the landfill of specified municipal solid waste and specified industrial waste that meet the requirements prescribed by the Minister of the Environment, the following standards [1] through [3] shall not apply (hereinafter known as the "Standards for Lower Soil Layer Construction").

[1] Landfill disposal shall be carried out in areas where a soil layer at least 50cm thick has been laid.

[2] For each layer of reclaimed waste that is about 3m thick, the layer of soil covering the surface shall be approximately 50cm thick.

[3] Measures necessary for preventing infiltration of rainwater into the soot and dust shall be taken.

[2] Landfill Disposal in Water Reclamation Areas

(Specified Municipal Solid Waste Treatment Standards)
Ordinance, Article 29, item (iii)

(d) The standards listed in (a) (2), (b) and (c) shall not apply in the following cases.

(2) Where landfill disposal is carried out at a Landfill Site at which water area solid waste disposal is carried out, which is designated by the Minister of Environment as a site ensuring water quality of the final effluent to be maintained properly (excluding such cases listed under (1).).

(Specified Industrial Waste Treatment Standards)
Ordinance, Article 31, item (iii)

(d) In the following cases, the standard specified under (c), which shall be governed by the provisions of Article 29, item (iii), (a), 2., (b), and (c), that shall be governed by the provision under the same item, (a), shall not be applied.

(2) Cases listed in Article 29 item (iii) (d) (2) (excluding cases listed under (1))

[Purpose of Measures]

When reclaiming specified municipal solid waste or specified industrial waste in the water of a water reclamation area, since it is not possible to prevent water contact or carry out layered landfill, the standards for lower soil layer construction shall not apply but only in cases where quality maintenance and management of the water discharge can be assured.

For the quality of the water discharge to be deemed as being maintained in an appropriate manner, the following requirements* as designated by the Minister of the Environment shall be met.

*Ministry of the Environment Ordinance No. 120330004 and 120330006 dated Mar 30, 2012

1) In the water reclamation area concerned, the concentration of the radioactive substances in the remaining landside water in the water reclamation area that is calculated from the ratio of the total volume of the radioactive substances considered to elude from the specified municipal solid waste or specified industrial waste that will be reclaimed until the landfill disposal is completed to the total volume of the remaining landside water in the water reclamation area when the landfill disposal is completed must be below the concentration limit of the radioactive substances in the public water areas around the final disposal site as prescribed under the Ordinance Article 33 item (2) (d)).

2) When the requirement in 1) is not met, sufficient capacity for treating the discharge volume that requires treatment in the water reclamation area shall be ensured.

3) Upon being designated, it must be possible to take the following measures.

(i) Continuously measure the radioactive concentration and elution rate of the radioactive substances of the specified municipal solid waste or specified industrial waste that is going to be reclaimed in the water reclamation areas, and manage the transportation of the specified municipal solid waste or specified industrial waste to be reclaimed in an appropriate manner.

(ii) Measure and continuously monitor the concentration of the radioactive substances in the remaining landside water of the water reclamation area.

(iii) Record and retain the measurement results in (i) and (ii) for a period of time.

[3] Landfill at a Location which is Isolated from Public Water Area and Groundwater

(Specified Municipal Solid Waste Treatment Standards)
Ordinance, Article 31, item (iii)

(d) In the following cases, the standard specified under (c), which shall be governed by the provisions of Article 29, item (iii), (a), 2., (b), and (c), that shall be governed by the provision under the same item, (a), shall not be applied.

(3) Where landfill disposal is carried out at a place isolated from public water areas and groundwater (excluding cases listed under 1.).

[Purpose of Measures]

When reclaiming specified industrial waste in a site that is isolated from public water areas and groundwater (isolated final disposal site), there is no risk of the isolated final disposal site being infiltrated by rainwater from the outside or water being discharged outside and thus the standards for lower soil layer construction do not apply (**Figure 4-10**).

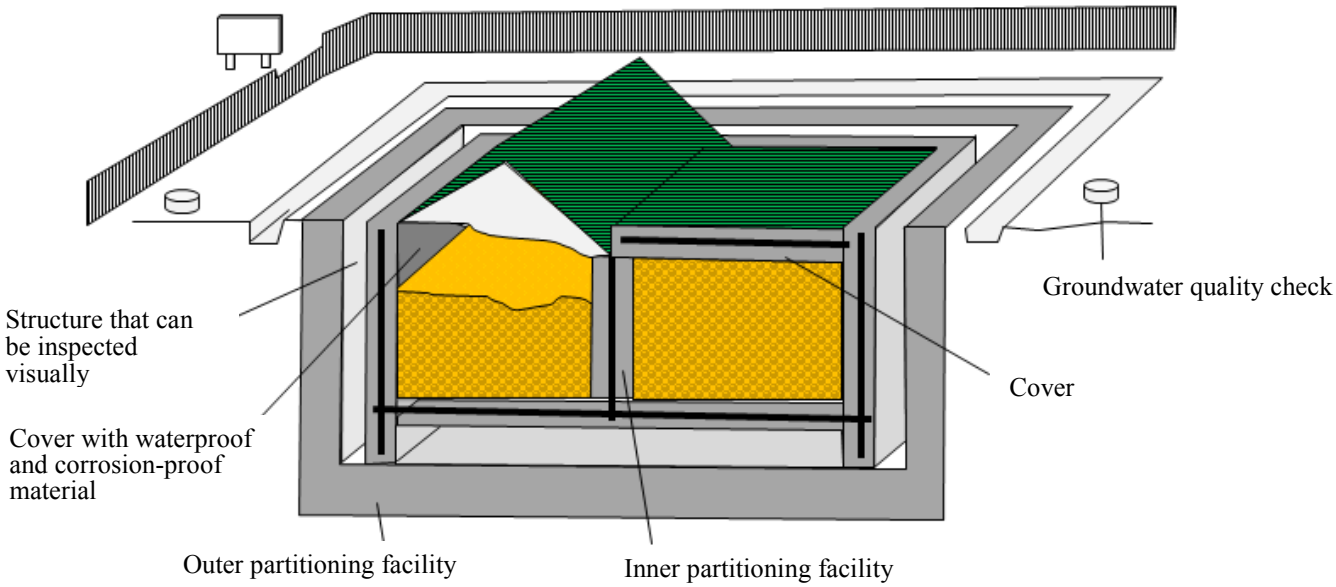


Figure 4-10: Image of Isolated-type Final Disposal Site

(5) Landfill Disposal at a Stable Final Disposal Site

Ordinance, Supplementary Provisions, Article 3

If only the specified industrial waste specified in the Ordinances for Enforcement of the Waste Management and Public Cleansing Act, Article 7-9, paragraph (1), that can be applied by broad interpretation in accordance with the provision of the following Article (Ordinance of the Ministry of Health No. 35 of 1971, hereinafter referred to as the "Waste Disposal Rules") is disposed of by landfill (excluding where it is provided in Article 31, item (iii), (d), 1. through 3.), the standards under the provision of Article 29, item (iii), (a), (2), which shall be governed by the same item, (a), and the provision of Article 29, item (iii), (c), which shall be governed by the provision of Article 31, item (iii), (b), and the same item, (c), shall not apply.

Ordinance, Supplementary Provisions, Article 4 (excerpt)

The definition of "industrial waste only" in Article 7(9) paragraph (1) of the Waste Management Ordinance shall, for the time being, refer to "industrial waste only" which excludes the one corresponding to the specified industrial waste as prescribed under Article 23 paragraph (2) of the Special Measures Act Against Contamination by Radioactive Substances (excluding the one corresponding to the requirements prescribed by the Minister of the Environment that poses no risk of contamination to public water areas and groundwater by radioactive substances (as prescribed under Article 1 of the Special Measures Act Against Contamination by Radioactive Substances)).

[Purpose of Measures]

Measures such as the construction of lower soil layers shall not apply only when carrying out landfill disposal of specified industrial waste (limited to stable specified industrial waste) that poses no risk of contaminating public water areas and groundwater in stable final disposal sites.

The requirements for specified industrial waste (limited to stable specified industrial waste) that can be reclaimed in stable final disposal sites as waste that poses no risk of contaminating public water areas and groundwater shall be as prescribed by the Minister of the Environment.

4.2 Standards for the Maintenance and Management of Specified Municipal Solid Waste Treatment Facilities and Specified Industrial Waste Treatment Facilities (Final Disposal Sites)

[Summary of the System]

○ Installation operators etc. of treatment facilities for specified municipal solid waste and specified industrial waste must comply with the special maintenance and management standards (maintenance and management standards for specified municipal solid waste and specified industrial waste treatment facilities) in addition to the maintenance and management standards for waste treatment facilities based on the Waste Management Act for the time being.

4.2.1 Special Maintenance and Management Standards for Final Disposal Sites of Specified Municipal Solid Waste

Ordinance, Article 33

The technical standards for maintenance and management of specified municipal solid waste disposal facilities prescribed by the Ordinance of the Ministry of the Environment as under the Act, Article 24, paragraph (1) shall be as follows:

(ii) At a final disposal site which is or has been provided to be used for landfill disposal of municipal solid waste, comply with the following.

(1) **Measurement and Records of Air Dose Rate**

Ordinance, Article 33, item (ii)

(a) At the boundary of the final disposal site, the amount of radiation shall be measured at least once every 7 days (or at a final disposal site where landfill disposal is completed, once every month) by the method prescribed by the Minister of the Environment under Article 15, item (xi), which shall be recorded.

[Purpose of Measures]

In order to confirm that there is no impact on human health and the surrounding living environment, it is necessary to measure and record the air dose rate at the boundary of the final disposal site at least once a week (once a month at final disposal sites where landfill has been completed).

Measurement of the air dose rate and management of the measurement results shall be conducted in accordance with the method set forth in Chapter 2 in "Part V: Guidelines for Method of Measurement of Radioactive Concentration".

(2) **Groundwater quality inspection**

Ordinance, Article 33, item (ii)

(b) To determine whether there is any impact on the quality of the groundwater around the final disposal site due to eluate from the landfill, samples from at least two locations shall be taken, or the quality of the groundwater discharged from groundwater collection and discharge equipment shall be inspected as follows.

(1) Before commencing landfill disposal, the radioactive substances discharged by the accident must be measured and recorded in accordance with the methods as prescribed by the Minister of the Environment under Article 26 paragraph (1) item (iii) (a) (1).

(2) After the commencement of landfill disposal, the radioactive substances discharged by the accident must be measured and recorded at least once a month in accordance with the methods as prescribed by the Minister of the Environment under Article 26 paragraph (1) item (iii) (a) (1).

[Purpose of Measures]

In order to confirm that there is no impact on the quality of the groundwater around the final disposal site due to radioactive cesium in the eluate from the landfill , it is necessary to measure and record the concentration of the radioactive cesium before and after the commencement of the landfill at least once a month.

Measurement of the groundwater quality and management of the measurement results shall be conducted in accordance with the method set forth in Chapter 5 in "Part V: Guidelines for Method of Measurement of Radioactive Concentration" and the measures set forth in the following paragraph **4.2.1(3) "Measures when deterioration in the quality of groundwater is observed"**.

(3) **Measures when a deterioration in groundwater quality is observed**

Ordinance, Article 33, item (ii)

(c) When a deterioration in the water quality is observed in the results of the water quality inspection as prescribed under (b) (except when the cause is clearly due to reasons other than the final disposal site concerned), measures to investigate the cause and conserve the living environment need to be taken.

[Purpose of Measures]

When a deterioration in the water quality due to radioactive cesium is observed in the results of the groundwater quality inspection, the cause shall be investigated and measures need to be taken to conserve the living environment.

[Example of Measures]

When deterioration in the water quality due to radioactive cesium is observed, since it is considered likely that water may flow outside the landfill due to damages in the water isolation works of the final disposal site, inspections need to be carried out promptly to check whether there is any outflow of radioactive cesium.

When abnormalities are observed in the results, the landfill shall be stopped and measures to investigate the cause and restore the function need to be taken.

(4) **Concentration Limit of Final Effluent and Its Measurement and Record**

Ordinance, Article 33, item (ii)

(d) Through monitoring of the concentration of radioactive materials discharged by the accident in such final effluent at the drain outlet, it shall be ensured that the sum of the ratios of a three-month average concentration of each radioactive materials discharged by the accident listed in the 1st column of appended table 2 in the water of the public water area surrounding the final disposal site against the concentration value listed in the 3rd column for such radioactive materials discharged by the accident will not exceed one.

(e) The concentration of radioactive materials discharged by the accident in such final effluent shall be measured and recorded at least once every month by the method prescribed by the Minister of the Environment as under Article 26, paragraph (2), item (iv), (c), 2.

[Purpose of Measures]

With respect to the concentration of radioactive cesium in the final effluent, to ensure that there is no impact on the living environment and human health due to the radioactive cesium, the average concentration for three months as calculated in accordance with the following formula (sum of the ratios of cesium-134 and cesium-137 to the respective concentration limits) shall be controlled to ensure that it does not exceed 1.

$$\text{Concentration of cesium-134 (Bq/L)}/60\ \text{(Bq/L)} + \text{Concentration of cesium-137 (Bq/L)}/90\ \text{(Bq/L)} \leq 1$$

The concentration of the radioactive cesium in the final effluent shall be measured and recorded at least once a month in accordance with the method set forth in Chapter 5 in "Part V: Guidelines for Measurement Method of Radioactive Concentration".

[Example of Measures]

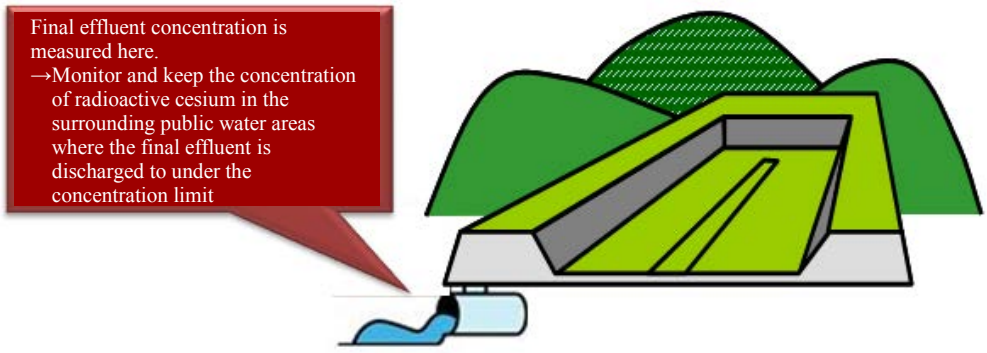
- When the concentration of the radioactive cesium in the final effluent exceeds the concentration limit, measurements of the concentration of the radioactive cesium in public water areas of the discharge outlet downstream shall be taken. These measurements shall be carried in accordance with the method set forth in Chapter 5 in "Part V: Guidelines for Method of Measurement of Radioactive Concentration".
- The following methods can be considered as emergency evacuation measures and means to lower the concentration of the radioactive cesium in the final effluent.
  - ○ During emergencies
  - ➢Return collected water that has not been processed using zeolite to the regulating tank for seepage water after stopping the discharge of final effluent.
  - ➢Add zeolite to the regulating tank for seepage water or chemical precipitation tank to allow the cesium to be absorbed by the zeolite.
  - ➢Allow the accumulated water to come into sufficient contact with the zeolite by circulating the accumulated water, and check that the concentration of radioactive cesium in the accumulated water is below the concentration limit.
  - ➢Replacing the filter in the filtration facility with zeolite, or installing a new zeolite absorption tower is also effective.

○ During normal times

➢Pass the water through a zeolite absorption tower, or a filtration facility that has its filter replaced by zeolite.

(Reference)

- The concentration limit of radioactive cesium in the surrounding public water areas is set at 1mSv/year or less, which is the permissible limit that the general public can continue to be exposed to from age zero to seventy.
- According to the maintenance and management standards of a final treatment facility based on the Special Measures Act, the concentration limit of radioactive cesium in the surrounding atmosphere and public water areas has to be complied with. In reality, the final effluent in surrounding public water areas is measured and monitored at the water discharge outlet in order to comply with the concentration limit.



Concentration limit of radioactive cesium in surrounding public water

$$\frac{\text{Cesium-134 Concentration (Bq/L)}}{60\ (\text{Bq/L})} + \frac{\text{Cesium-137 Concentration (Bq/L)}}{90\ (\text{Bq/L})} \leqq 1$$

Permissible limit set at 1mSv/year or less, which is the limit that a person can continue to be exposed to annually from age zero to seventy.

(5) **Records Necessary for Maintenance and Management and Retention**

Ordinance, Article 33, item (ii)

(f) Record of the following matters and a drawing indicating the location where the specified municipal solid waste is filled shall be prepared, which shall be retained until the final disposal site is abolished:

1. The kind of specified municipal solid waste filled (if such specified municipal solid waste includes any specified municipal solid waste prescribed under Article 29, item (iii), (c) or (d), 1., such fact shall be included) and its quantity;
2. The date on which landfill disposal was carried out per specified municipal solid waste filled; and
3. Measurements pursuant to the provisions under (a) and (e), water examination pursuant to the provision under (b), and measures pursuant to the provision under (c).

[Purpose of Measures]

Record of the following matters shall be made and retained until the final disposal site is abolished.

- · Kind and quantity of the specified municipal solid waste that has been reclaimed
- · Date of the landfill disposal
- · Measurement records for maintenance and management purposes
  - Water quality of final effluent
  - Air dose rate at the boundary of the premises
  - Water quality of surrounding groundwater and measures in case of deterioration of water quality

➢ Landfill location drawing of the specified industrial waste

・In order to manage the specified industrial waste that has been reclaimed in an appropriate manner, a drawing showing the location of the landfill where the specified industrial waste is reclaimed shall be prepared and retained until the final disposal site is abolished.

[Example of Measures]

The drawing should not simply provide an overall planar view of the landfill location.
It is also important to show information such as the height using cross-sectional structural drawings.

(Notes on maintenance and management)

Take note of the following points in the maintenance and management.

➢ Conduct regular inspections to visually verify that the final disposal sites for specified municipal solid waste are being maintained and managed in a proper manner.

➢ Remove earth and sand accumulated in the run off collection facility (gutter etc.) established around the landfill so that the rainwater from the surrounding areas does not flow into the landfill.

4.2.2 Special Maintenance and Management Standards for Final Disposal Sites of Specified Industrial Waste

Ordinance, Article 35

The technical standards for maintenance and management of specified industrial waste disposal facilities prescribed by the Ordinance of the Ministry of the Environment as under the Act, Article 24, paragraph (2), shall be as follows:

(1) Special Standards for Maintenance and Management of Isolated-Type Final Disposal Sites (the Waste Management Act, Enforcement Ordinance, Article 7, item (xiv) (a))

Ordinance, Article 35

(iii) At a final disposal site for industrial waste specified under the Waste Management Order, Article 7, item (xiv), (a), comply with the following:

(a) The provisions under Article 33, item (ii), (a) through (c) shall govern.

(b) Record of the following matters and a drawing indicating the location where the specified industrial waste is filled shall be prepared, which shall be retained until the final disposal site is abolished:

1. The kind of specified industrial waste filled (if such specified industrial waste includes any specified industrial waste prescribed under Article 31, item (iii), (c), such fact shall be included) and its quantity;
2. The date on which landfill disposal was carried out per specified industrial waste filled; and
3. Measurements pursuant to the provisions under Article 33, item (ii), (a), which shall govern pursuant to the provision of (a), water examination pursuant to the provision under the same item, (b), which shall govern pursuant to the provision of (a), and measures pursuant to the provision under the same item, (c), which shall govern pursuant to the provision of (a).

[Purpose of Measures]

Like the final disposal sites for specified industrial waste, there is a need to retain the records on the landfill location, measurements of the surrounding groundwater, and air dose rate at the boundary of the premises. However, since there is no final effluent generated due to the structure, measurement of the final effluent is therefore not provided for.

When disposing specified municipal solid waste in an isolated-type final disposal site, the following matters shall be recorded and retained until the abolition of the final disposal site.

- Kind and quantity of specified industrial waste that has been reclaimed
- Date of the landfill disposal
- Measurement records for maintenance and management purposes
  - Air dose rate at the boundary of the premises
  - Water quality of surrounding groundwater and measures in case of deterioration of water quality
- Landfill location drawing of the specified industrial waste

In order to manage the specified industrial waste that has been reclaimed in an appropriate manner, a drawing showing the location of the landfill where the specified industrial waste is reclaimed shall be prepared and retained until the final disposal site is abolished.

[Example of Measures]

The drawing should not simply provide an overall planar view of the landfill location.

It is also important to show information such as the height using cross-sectional structural drawings.

(2) Special Standards for Maintenance and Management of Stable Final Disposal Sites (the Waste Management Act, Enforcement Ordinance, Article 7, item (xiv), b.)

Ordinance, Article 35

(iv) At any final disposal site for industrial waste specified under the Waste Management Order, Article 7, item (xiv), (b) comply with the following:

(a) The provisions under Article 33, item (ii), (a), shall govern.

(b) Water examination shall be conducted for the groundwater that is taken from two or more locations suitable for evaluating the presence or absence of the influence of the seepage water (referring to rainwater, etc., that has passed through a layer of specified industrial waste; the same shall apply under (d)) on the water quality of the groundwater in the area surrounding the final disposal site as follows:

1. Prior to commencement of landfill disposal, measurement shall be conducted for radioactive materials discharged by the accident by the method prescribed by the Minister of the Environment as under Article 26, paragraph (4), item (ii), (a), 1., which shall be recorded.
2. After commencement of landfill disposal, measurement shall be conducted for radioactive materials discharged by the accident by the method prescribed by the Minister of the Environment as under Article 26, paragraph (4), item (ii), (a), 1., at least once every month, which shall be recorded;

(c) In the event that any deterioration of water quality (excluding cases where the cause is obviously other than such final disposal site) is detected as a result of water examination pursuant to the provisions under (b), the cause thereof shall be surveyed and measures necessary for the conservation of the living environment shall be taken.

(d) The concentration of radioactive materials discharged by the accident in the seepage water taken by a sampling equipment prescribed under the Ordinance Prescribing Technical Standards Pertaining to Final Disposal Sites of Municipal Solid Waste and Final Disposal Sites of Industrial Waste (Ordinance of the Prime Minister's Office/ Ministry of Health and Welfare No. 1 of 1977), Article 2, paragraph (1), item (iii), (c), shall be measured at least once every month by the method prescribed by the Minister of the Environment as under Article 26, paragraph (4), item (ii), (c), which shall be recorded.

(e) In the event that any deterioration of water quality (excluding cases where the cause is obviously other than such final disposal site) is detected as a result of measurement pursuant to the provisions under (d), transportation and landfill disposal of specified industrial waste into/at the final disposal site shall be promptly suspended, the cause thereof shall be surveyed and measures necessary for the conservation of the living environment shall be taken.

(f) Record of the following matters and a drawing indicating the location where the specified industrial waste is filled shall be prepared, which shall be retained until the final disposal site is abolished:

1. The kind of specified industrial waste filled (if such specified industrial waste includes any specified industrial waste prescribed under Article 31, item (iii), (c), such fact shall be included) and its quantity;
2. The date on which landfill disposal was carried out per specified industrial waste filled; and
3. Measurements pursuant to the provisions under Article 33, item (ii), (a) and (d) of which shall govern pursuant to the provision of (a), water examination pursuant to the provision under (b), and measures pursuant to the provisions under (c) and (e).

[Purpose of Measures]

When reclaiming specified industrial waste (limited to those corresponding to the requirements prescribed by the Minister of the Environment under the Ordinance, Supplementary Provisions, Article 4) in a stable final disposal site, it is necessary to perform maintenance and management such as the preparation and retention of landfill location drawings, as well as measurements of the concentration of radioactive substances in the surrounding groundwater, the permeating water, the air dose rate at the boundary of the premises of the stable

disposal site etc.

When disposing specified industrial waste in a stable final disposal site, the following matters shall be recorded and retained until the abolition of the final disposal site.

- Kind and quantity of specified industrial waste that has been reclaimed
- Date of the landfill disposal
- Measurement records for maintenance and management purposes
  - Air dose rate at the boundary of the premises
  - Water quality of surrounding groundwater and measures in case of deterioration of water quality
  - Concentration of radioactive cesium in the permeating water and measures in case of deterioration of water quality
- Landfill location drawing of the specified industrial waste

In order to manage the specified industrial waste that has been reclaimed in an appropriate manner, a drawing showing the location of the landfill where the specified industrial waste is reclaimed shall be prepared and retained until the final disposal site is abolished.

[Example of Measures]

The drawing should not simply provide an overall planar view of the landfill location.
It is also important to show information such as the height using cross-sectional structural drawings.

(3) Special Standards for Maintenance and Management of Controlled Final Disposal Sites (the Waste Management Act, Enforcement Ordinance, Article 7, item (xiv), c.)

Ordinance, Article 35

(v) At any final disposal site for industrial waste specified under the Waste Management Order, Article 7, item (xiv), (c), comply with the following:
  (a) The provisions under Article 33, item (ii), (a) through (e) shall govern.
  (b) Record of the following matters and a drawing indicating the location where the specified industrial waste is filled shall be prepared, which shall be retained until the final disposal site is abolished:
    1. The kind of specified industrial waste filled (if such specified industrial waste includes any specified industrial waste prescribed under Article 31, item (iii), (c), or (d), 1., such fact shall be included) and its quantity;
    2. The date on which landfill disposal was carried out per specified industrial waste filled; and
    3. Measurements pursuant to the provisions under Article 33, item (ii), (a) and (e), which shall govern pursuant to the provision of (a), water examination pursuant to the provision under the same item, (b), which shall govern pursuant to the provision of (a), and measures pursuant to the provision under the same item, (c), which shall govern pursuant to the provision of (a).

[Purpose of Measures]

For the maintenance and management of controlled final disposal sites, there is a need to prepare and retain the records on the landfill location, measurements of the surrounding groundwater and air dose rate at the boundary of the premises, just like the final disposal sites for specified municipal solid waste.

When disposing specified industrial waste in a controlled final disposal site, the following matters shall be recorded and retained until the final disposal site is abolished.

- Kind and quantity of specified industrial waste that has been reclaimed
- Date of the landfill disposal

· Measurement records for maintenance and management purposes
  - Water quality of final effluent
  - Air dose rate at the boundary of the premises
  - Water quality of groundwater and measures in case of deterioration of water quality
· Landfill location drawing of the specified industrial waste

In order to manage the specified industrial waste that has been reclaimed in an appropriate manner, a drawing showing the location of the landfill where the specified industrial waste is reclaimed shall be prepared and retained until the final disposal site is abolished.

[Example of Measures]
The drawing should not simply provide an overall planar view of the landfill location.
It is also important to show information such as the height using cross-sectional structural drawings.

(Specification of terms that ought to be included in the outsourcing contract)
Ordinance, Supplementary provisions, Article 5

Regarding the application of the provision under the Waste Management Ordinance Article 8(4)(2), the definition of "industrial waste containing asbestos" in item (vi)(e) of the same ordinance shall, for the time being, refers to industrial waste containing asbestos or specified industrial waste containing asbestos (specified industrial waste as prescribed under the Special Measures Act Article 23 paragraph (2) (2011 Act No. 110) regarding the treatment of environmental contamination by radioactive substances discharged by the nuclear plant accident that was caused by the Pacific Ocean Earthquake in the Tohoku Region on Mar 11, 2011) .

(Special provision on industrial waste control form)
Ordinance, Supplementary provisions, Article 6

Regarding the application of the provisions under the Waste Management Ordinance Article 8(20), Article 8(21) paragraph (1), Article 8(31)(2), Article 8(32) and Article 8(36) together with Format item (ii) (15) and item (iii), the definition of "industrial waste containing asbestos" in these provisions shall, for the time being, refers to industrial waste containing asbestos or specified industrial waste containing asbestos (specified industrial waste as prescribed under the Special Measures Act Article 23 paragraph (2) (2011 Act No. 110) regarding the treatment of environmental contamination by radioactive substances discharged by the nuclear plant accident that was caused by the Pacific Ocean Earthquake in the Tohoku Region on Mar 11, 2011) .

[Purpose of Measures]

When the outsourced industrial waste contains specified industrial waste, this has to be highlighted in the outsourcing contract for specified industrial waste, industrial waste manifest and industrial waste manifest issuance report etc. In this case, the volume of the specified industrial waste concerned also needs to be stated in the manifest.

The above-mentioned shall also apply for electronic manifests and reports sent by the information processing centers to the prefectural governors.

Chapter 6 Other

6.1 Prohibitions on Sea Discharge

Ordinance, Article 31
(iv) Ocean dumping shall not be carried out for any specified industrial waste.

[Purpose]

Dumping of specified industrial waste into the ocean is prohibited.

Municipal solid waste is prohibited from being dumped into the ocean by the Waste Management Act, Enforcement Ordinance, Article 3, item (iv).

6.2 Safety Management of the Operators

[Example of Measures]

The following are some of the reference materials on the prevention of radiation hazards of operators pertaining to the interim treatment of specified municipal solid waste or specified industrial waste.

- Radiation hazard prevention manual in incineration facilities (Japan Environmental Sanitation Center, Jan. 2012)

  [Summary]

  ➢Aims to define the work safety measures for operators handling incineration ash that is at risk of contamination by mainly radioactive substances (bottom ash) and fly ash (soot and dust) taking into consideration the intent of ionizing radiation hazard prevention rules, and to prevent the radiation exposure of operators.

  ➢Monitoring of radioactive substances (including radiation concentration measurement of the sewerage sludge, bottom ash, fly ash etc.)

  ➢Establishment of controlled areas (when there is a risk of the effective dose exceeding 2.5μSv/h)

  ➢Take out standards outside of controlled areas or facilities

  ➢Control essentials of operator radiation dosage and exposure limits

Chapter 7 Penal Provisions

(Treatment Standards for Specified Municipal Solid Waste, etc.)
Article 23

6. For the purpose of the application of the provisions of Articles 19-3 and 19-4 of the Waste Management Act (including the penal provisions pertaining to the provisions) to the disposal of specified municipal solid waste by a person or entity prescribed in paragraph 1, the term "specially controlled municipal solid waste disposal standards" in Article 19-3, item 1 of the Waste Management Act shall be interpreted as "specially controlled municipal solid waste disposal standards or standards set forth in the Ordinance of the Ministry of the Environment referred to in Article 23, paragraph 1 of the Act on Special Measures concerning the Handling of Environment Pollution by Radioactive Materials Discharged by the NPS Accident Associated with the Tohoku District - Off the Pacific Ocean Earthquake That Occurred on March 11, 2011 (Act No. 110 of 2011; referred to as "special treatment standards" in item 3 and paragraph 1 of the following Article)," "specially controlled municipal solid waste disposal standards" in item 3 of the same Article, as "specially controlled municipal solid waste disposal standards or special treatment standards," and "specially controlled municipal solid waste disposal standards" in Article 19-4, paragraph 1 of the Waste Management Act, as "specially controlled municipal solid waste disposal standards or special treatment standards."
7. For the purpose of the application of the provisions of Articles 19-3 and 19-5 of the Waste Management Act (including the penal provisions pertaining to the provisions) to the disposal of specified industrial waste by a person or entity prescribed in paragraph 2, the term "industrial waste disposal standards" in Article 19-3, item 2 of the Waste Management Act shall be interpreted as "industrial waste disposal standards or standards set forth in the Ordinance of the Ministry of the Environment referred to in Article 23, paragraph 2 of the Act on Special Measures concerning the Handling of Environment Pollution by Radioactive Materials Discharged by the NPS Accident Associated with the Tohoku District - Off the Pacific Ocean Earthquake That Occurred on March 11, 2011 (Act No. 110 of 2011; hereinafter referred to as "special treatment standards" in this Article and Article 19-5, paragraph 1)," "specially controlled industrial waste disposal standards," as "specially controlled industrial waste disposal standards or special treatment standards," "specially controlled industrial waste disposal standards" in item 3 of the same Article, as "specially controlled industrial waste disposal standards or special treatment standards," "industrial waste disposal standards" in Article 19-5, paragraph 1 of the Waste Management Act, as "industrial waste disposal standards or special treatment standards," and "specially controlled industrial waste disposal standards" as "specially controlled industrial waste disposal standards or special treatment standards."

(Maintenance and Management Standards for Specified Municipal Solid Waste Disposal Facilities)
Article 24

3. For the purpose of the application of the provisions of Article 9-2, paragraph 1, item 1 and Article 9-3, paragraph 10 of the Waste Management Act (including the penal provisions pertaining to the provision of Article 9-2 of the Waste Management Act) to a builder of specified municipal solid waste disposal facilities in the maintenance and management of such facilities, the term "the technical standards" in these provisions shall be interpreted as "the technical standards (including the technical standards set forth in the Ordinance of the Ministry of the Environment referred to in Article 24, paragraph 1 of the Act on Special Measures concerning the Handling of Environment Pollution by Radioactive Materials Discharged by the Nuclear Power Station Accident Associated with the Tohoku District - Off the Pacific Ocean Earthquake that Occurred on March 11, 2011 (Act No. 110 of 2011)."
4. For the purpose of the application of the provision of Article 15-2-7, item 1 of the Waste Management Act (including the penal provisions pertaining to the provision) to a builder of specified industrial waste disposal facilities in the maintenance and management of such facilities, "the technical standards" in the same item shall be interpreted as "the technical standards (including the technical standards set forth in the Ordinance

of the Ministry of the Environment referred to in Article 24, paragraph 2 of the Act on Special Measures concerning the Handling of Environment Pollution by Radioactive Materials Discharged by the Nuclear Power Station Accident Associated with the Tohoku District - Off the Pacific Ocean Earthquake that Occurred on March 11, 2011 (Act No. 110 of 2011)."

[Purpose pf Measures]

If the treatment does not conform to the special treatment standards for specified municipal solid waste or specified industrial waste, or the technical standards for the maintenance and management of specified municipal solid waste or specified industrial waste treatment facilities under the Special Measures Act, the improvement directives, measure directives, penal provisions in the event of non-conformance to the treatment standards for municipal solid waste or industrial waste, or the technical standards for the maintenance and management of municipal solid waste or industrial waste treatment facilities under the Waste Management Act, shall apply.

(1) Penal provisions, etc., on the Standards for Treatment of Specified Municipal Solid Waste and Specified Industrial Waste

If the storage, collection, transport or disposal does not conform to the special treatment standards under the Special Measures Act, under the Waste Management Act, Article 19-3, Article 19-4, or Article 19-5, which are applied under the Special Measures Act, Article 23, paragraph (6) or paragraph (7), mayors of municipalities or governors of prefectures may give an order for improvement or order for action to the person who carried out the storage, collection, transportation or disposal.

If any breach of these orders was committed, penal provisions under the Waste Management Act shall apply.

(2) Penal provisions, etc., on the Technical Standards for Maintenance and Management of Specified Municipal Solid Waste Treatment Facilities and Specified Industrial Waste Treatment Facilities

If the management does not conform to the technical standards for the maintenance and management of specified municipal solid waste treatment facilities or specified industrial waste treatment facilities under the Special Measures Act, under the Waste Management Act, Article 9-2, paragraph (1), item (i), Article 9-3, paragraph (10) or Article 15-2-7, item (i), which are applied under the Special Measures Act, Article 24, paragraph (3) or paragraph (4), governors of prefectures may give an order for necessary improvement or order for suspension of use of the facilities to the installer or operator of the facility concerned.

If any breach of these orders was committed, penal provisions under the Waste Management Act shall apply.