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**ASSESSING LEGAL COMPLIANCE WITH AND IMPLEMENTATION OF THE WASTE  
ACCEPTANCE CRITERIA AND PROCEDURES BY THE EU-12**

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**BiPRO**

Beratungsgesellschaft für integrierte Problemlösungen



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# 1 Annex I: Country reports

## 1.1 Country Report Bulgaria

The WAC Decision is literally implemented in Bulgarian legislation. The different criteria, which have to be defined individually by each Member State in accordance to the WAC Decision, are only set in a general way.

- In case of physical stability and bearing capacity it is stated, that criteria for granular hazardous waste have to be set to ensure that the waste will have sufficient physical stability and bearing capacity.
- In case of monolithic waste it is stated that monolithic waste has to provide the same level of protection as granular waste.

### 1.1.1 Legal assessment

Table 1.1-1 provides an overview on the legal documents transposing the WAC Decision requirements into national legislation. Furthermore, the table shows a qualitative assessment of the level of implementation or possible divergences, which are further, explained and justified in the following Sections.

Bulgaria			
Category	Corresponding national legislation	Implementation	Comments
1. Procedure		✓	
1.1 Basic Characterisation	Section 1.1 of Annex 1 to Regulation 8	✓	
1.1.1 Function	Section 1.1.1 of Annex 1 to Regulation 8	✓	
1.1.2 Fundamental requirements	Section 1.1.2. of Annex 1 to Regulation 8	✓	
1.1.3 Testing	Section 1.1.3 of Annex 1 to Regulation 8	✓	
1.1.4. Cases where testing is not required	Section 1.1.4. of Annex 1 to Regulation 8	✓	
1.2 Compliance Testing	Section 1.2. of Annex 1 to Regulation 8	✓	
1.3 On-site verification	Section 1.3. of Annex 1 to Regulation 8	✓	
2. Acceptance Criteria	Section 2. of Annex 1 to Regulation 8	✓	
2.1 Landfills for inert waste	Section 2.1 of Annex 1 to Regulation 8	✓	
2.1.1 Short list	Section 2.1.1 of Annex 1 to Regulation 8	✓	
2.1.2 Limit values	Section 2.1.2. of Annex 1 to Regulation 8	✓	
2.1.2.1 Leaching limit values	Section 2.1.2.1 of Annex 1 to Regulation 8	✓	
2.1.2.2 Limit values for total content of organic parameters	Section 2.1.2.2. of Annex 1 to Regulation 8	✓	
2.2 Landfills for non-hazardous waste	Section 2.2. of Annex 1 to Regulation 8	✓	
2.2.1 Without testing	Section 2.2.1. of Annex 1 to Regulation 8	✓	
2.2.2 Limit values for non-hazardous waste	Section 2.2.2. of Annex 1 to Regulation 8	~	Monolithic waste shall provide the same level of environmental protection as given by the limit values for granular waste from the corresponding tables
2.2.3 Gypsum waste	Section 2.2.3. of Annex 1 to Regulation 8	✓	
2.3 Criteria for hazardous waste acceptable at landfills for non-	Section 2.3 of Annex 1 to Regulation 8	✓	

Bulgaria			
Category	Corresponding national legislation	Implementation	Comments
hazardous waste, Art 6 c iii			
2.3.1 Leaching limit values	Section 2.3.1. of Annex 1 to Regulation 8	~	Monolithic waste shall provide the same level of environmental protection as given by the limit values for granular waste from the corresponding tables
2.3.2 Other criteria	Section 2.3.2. of Annex 1 to Regulation 8	~	Criteria for granular hazardous waste have to be set to ensure that the waste will have sufficient physical stability and bearing capacity. Monolithic waste shall provide the same level of environmental protection as given by the limit values for granular waste from the corresponding tables
2.3.3 Asbestos waste	Section 2.3.3. of Annex 1 to Regulation 8	✓	
2.4. Landfills for hazardous waste	Section 2.4. of Annex 1 to Regulation 8	✓	
2.4.1 Leaching limit values	Section 2.4.1 of Annex 1 to Regulation 8	~	Monolithic waste shall provide the same level of environmental protection as given by the limit values for granular waste from the corresponding tables
2.4.2 Other criteria	Section 2.4.2. of Annex 1 to Regulation 8	✓	
2.5 Criteria for underground storage	Section 2.5. of Annex 1 to Regulation 8	✓	

**Table 1.1-1: Implementation of WAC Decision requirements in Bulgarian Legislation**

#### 1.1.1.1 *Legal framework*

The WAC Decision has been implemented in Bulgarian legislation by Annex 1 to “**Regulation No 8 on the conditions and requirements for building and operation of landfills and other facilities and installations for waste recovery and disposal**” on 24 August 2008 (Regulation 8) (hereinafter called Regulation 8).

The set landfill categories are the same as in the WAC Decision. No sub-categories are defined.

#### 1.1.1.2 *Acceptance Procedure*

##### Basic Characterisation

The basic characterisation is literally implemented by section 1.1. of Annex 1 to Regulation 8. The time for record keeping of the basic characterisation is 30 years after closure according to Article 44 (1) of Regulation 8.

##### Compliance testing

The compliance testing is literally transposed into national legislation by section 1.2. of the Annex to Regulation 8. The time for record keeping of compliance testing is 30 years after closure according to Article 35. p. 4 and Article 44 (1) of Regulation 8.

##### On-site verification

On-site verification is literally implemented by section 1.2. of Annex 1 to Regulation 8.

Testing requirements and rapid test methods are not defined and the mandatory sampling upon delivery is stated to be taken periodically.

The time for storage of samples from on-site verification is stated to be not less than one month after waste acceptance.

#### 1.1.1.3 *Waste Acceptance Criteria*

All three limit values from the WAC Decision are implemented by Bulgarian legislation (L/S = 2 l/kg; L/S = 10 l/kg and the percolating test).

**Criteria for monolithic waste are only indirectly set. It is defined that they shall provide the same level of environmental protection as given by the limit values for granular waste from the corresponding tables.**

Sampling and testing for basic characterisation and compliance testing shall be carried out in accordance with European standards, taken over by Bulgarian standards. National standards can be used if European standards taken over by Bulgarian standards are not available. If neither, national standards nor European standards are available, international and national standards of other countries shall be used. In case none of the above mentioned standards are available, methods improved together with the laboratory accreditation from the Executive Agency “Bulgarian Accreditation Agency” shall be used.

For the sampling of waste, a sampling plan shall be developed in accordance with the acting Bulgarian standard or approved methods (international and national standard of other countries).

Criteria for waste acceptable at landfills for inert waste

Criteria for inert waste to be accepted at landfills for inert waste are literally implemented in section 2.1 of the Annex to Regulation 8.

The PAH value is set at 1,000 mg/kg.

Criteria for non-hazardous waste acceptable at landfills for non-hazardous waste

Criteria for non-hazardous waste to be accepted at landfills for non-hazardous waste are literally implemented by section 2.2 of Annex 1 to Regulation 8.

Criteria for gypsum waste are implemented literally in section 2.2.3. of the Annex to Regulation 8.

Criteria for hazardous waste acceptable at landfills for non-hazardous waste

Criteria for hazardous waste to be accepted at landfills for non-hazardous waste are implemented by section 2.3. of Annex 1 to Regulation 8.

Criteria for granular hazardous waste have to be set to ensure that the waste will have sufficient physical stability and bearing capacity.

The ANC has to be measured.

Asbestos waste has to fulfil the same criteria as set in the WAC Decision.

Criteria for waste acceptable at landfills for hazardous waste

Criteria for hazardous waste to be accepted at landfills for hazardous waste are transposed into national legislation by section 2.4. of Annex 1 to Regulation 8.

The ANC has to be measured.

Underground storage

Underground storage is literally implemented by section 2.5 of Annex 1 to Regulation 8.



### 1.1.2 Site visits

The site visits have been realised in close cooperation with the Twinning Project “Strengthening of the administrative capacity with the aim to ensure the efficient enforcement of the EU waste management *acquis communautaire*” which is performed by the Austrian Environment Agency (Umweltbundesamt) together with the Bulgarian Ministry of Environment and Water which includes several controls within the waste section. In this context three landfill sites have been visited, Sevlievo, Ruse and Lukoil in Burgas.

#### 1.1.2.1 Site visit to a representative non-hazardous waste landfill (Sevlievo, landfill class B and C)

##### General terms

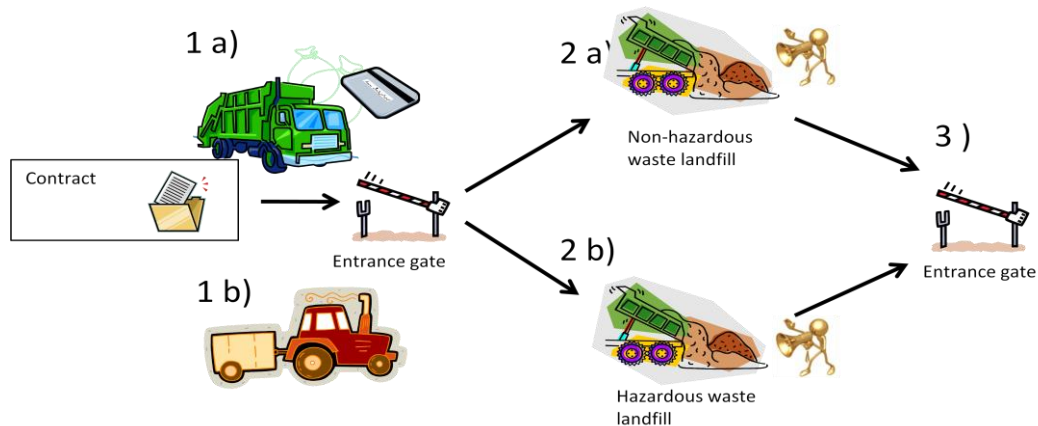


**Figure 1.1-1: Overview of the hazardous and non-hazardous landfill sites of Sevlievo. (Bulgaria)**

The landfill site of Sevlievo is a cooperation project of three municipalities. The landfill site is equipped with disposal sites for non-hazardous waste and hazardous waste. The construction of the landfill site started 2003 and was finished in 2006. In 2007 the landfill site received its IPPC permit. It shall continue working at least until 2031. The landfill site is equipped with a weighing bridge, a landfill leachate treatment plant, a landfill gas flare and disposal sites for non-hazardous and hazardous waste. An old landfill site for non-hazardous waste has already been closed. Non-hazardous waste can be disposed of on three disposal sites. The first one is the currently active disposal area. A second disposal area has already been prepared but it is not yet in use. A third area can be prepared if necessary. For hazardous waste 44 concrete chambers have been build which are continuously filled and sealed. Each cell has a capacity of 562 m<sup>3</sup>.

Non-hazardous waste delivered to the landfill site is municipal waste from the three municipalities (~15,000 tonnes per year), non-hazardous waste from different companies (~3,000 tonnes per year) or waste delivered by private people. The MSW is the majority of the total disposed waste. Each of the municipalities has its own waste collection company. About 40 companies have long term contracts and additional 5-10 companies have short term contracts with the landfill site. Waste delivered by private people without contract is less than 1 %.

Also C&D waste (~150 tonnes per year) and hazardous waste (~400 tonnes per year) is delivered to the landfill site.

Waste acceptance procedure

**Figure 1.1-2: Flow chart of the waste acceptance procedure at Sevlievo (Bulgaria)**

Once the waste is deemed acceptable at the landfill site according to the basic characterisation a contract with the waste deliverer is developed. Only companies with contracts and private persons can bring their waste to the landfill site.

The waste acceptance procedure at the landfill site is the following:

1. Waste arriving at the weighing bridge can be processed in two ways:
  - a) In case of waste delivered from private people, the waste is visually checked. If the waste is accepted at the landfill side the weight is taken before and after unloading.
  - b) In case of waste delivered from companies a swipe card is used and all necessary data are transferred into the computer system. An additional waste document “Regionalo Depo sa odpadzi Sevlievo” is given from the driver to the weighing bridge operator and is compared with the computer data. The document includes data as waste producer, EWC code, weight etc. The document is signed by the weighing bridge operator and given back to the driver.

On-site verification at the weighing bridge only occurs if the transport is open on top and a visual control is possible from the working place of the weighing bridge operator, which is not elevated.

2. Depending on the waste type, the driver is sent to one of the two possible locations
  - a) Non-hazardous waste disposal site
  - b) Hazardous waste chambers.

At the place of disposal the unloading is visually controlled by an employee of the landfill site. The latter signs the waste document from the driver, who moves back to the weighing bridge after unloading. In case of suspicion the landfill operator is informed and the waste is loaded again onto the lorry if necessary.

3. At the weighing bridge the swift card is used. The waste document is given again to the weighing bridge operator to fill in the weight and for another signature from the weighing bridge operator. The waste document is therefore signed twice by the weighing bridge operator, the diver and the employee at the disposal site.

A copy of the waste document is given to the driver and the original is kept at the landfill site for one year. After one year it is brought to the archive. In the archive the document is kept without time limit. The data stored in the computer system are also kept without time limit.

#### Basic characterisation

The basic characterisation is prepared by the waste delivering company except for household waste. Analyses for the basic characterisation are performed by accredited laboratories. The basic characterisation is kept at the landfill site for one year and afterwards stored in the archive.

#### Compliance testing

Compliance testing is performed at the first delivery of the waste and afterwards once a year by the landfill site.

#### On-site verification

On-site verification is performed by the weighing bridge operator as well as by an employee on the place of unloading. The on-site verification at the weighing bridge consist only of a document check but at a place of unloading the waste is visually checked by the trained employees of the landfill site controlling the caterpillar or compactor.

#### Expert proposals related to potential modifications of the WAC

There are no proposals for the WAC Decision.

### 1.1.2.2 Site visit to representative non-hazardous waste landfill (Ruse, landfill class A, B and C)

#### General terms



**Figure 1.1-3: Overview of the hazardous and non-hazardous landfill sites of Ruse. (Bulgaria)**

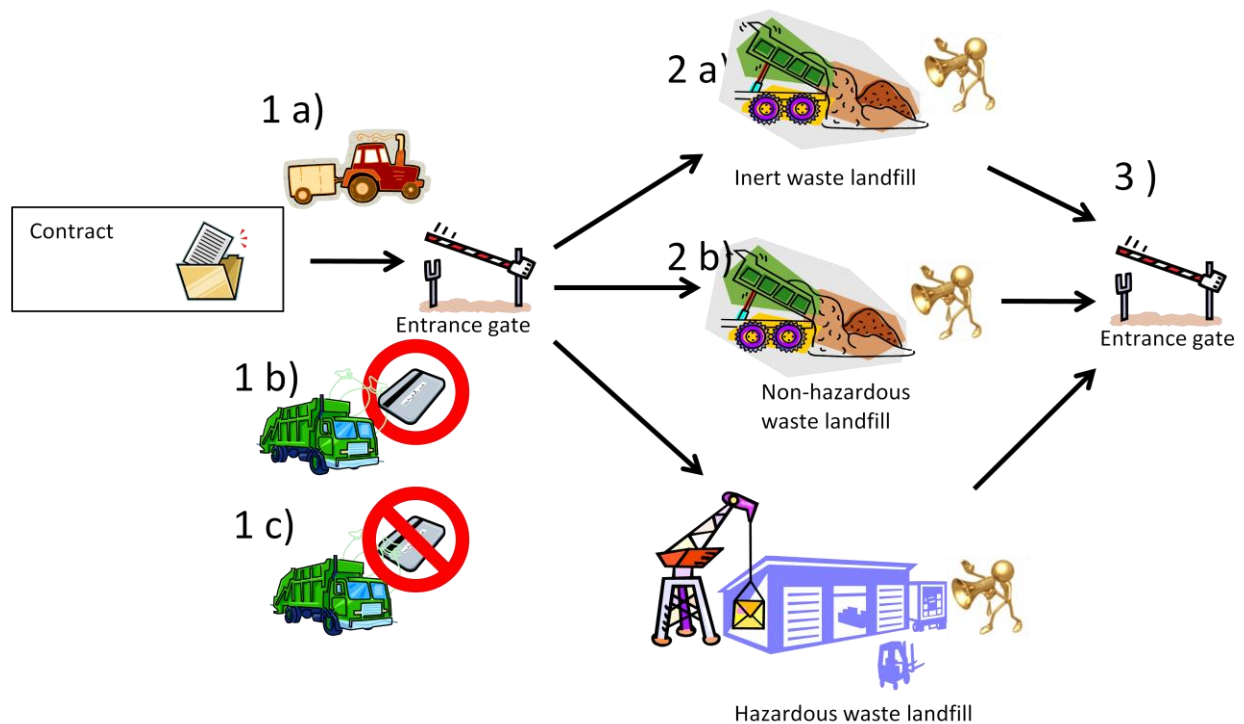
The landfill site of Ruse was built and finished in 2005. At the landfill site municipal solid waste from 5 surrounding municipalities with about 240.000 inhabitants is disposed of. The landfill site has contracts with about 40 to 50 companies and about 85 to 90 % of the clients/lorry drivers are equipped with a swipe card. The total area of the landfill site is 292 ha. This area is separated into different disposal sites for inert, non-hazardous and hazardous waste.

The landfill comprises two disposal sites for inter waste with a total capacities of 86,000 and 84,000 t. The first cell is already full and the second has started operation.

The landfill site includes in total 5 disposal sites for non-hazardous waste with capacities of 661,000 m<sup>3</sup>, 501,000 m<sup>3</sup>, 657,000 m<sup>3</sup>, 357,000 m<sup>3</sup> and 437,000 m<sup>3</sup>. The first cell of the disposal site for non-hazardous waste is filled to about 66 % (453,000 m<sup>3</sup>). This waste amount was disposed of between January 2007 and January 2010. The second and the third cells are already prepared for landfilling. Cells 4 and 5 can be established when needed. Considering the acceptable amounts of waste from the permit, the three established cells can operate for further five years. Together with the additional two cells this period is expanded to 10 years. Practically it is expected that operation will continue for 10 to 20 years respectively.

Eight hazardous waste cells can be erected, with a capacity of 1,500 t each. Two of these eight cells have already been built and one is filled with 144 t. The cells are concrete basins which are successively filled with containers including hazardous waste. Once the basins are filled they are sealed and covered with a recultivation layer.

No additional installation exists on the landfill site

Waste acceptance procedure

**Figure 1.1-4: Flow chart of the waste acceptance procedure at Ruse (Bulgaria)**

Once the waste is deemed acceptable at the landfill site according to the basic characterisation a contract with the waste deliverer is developed. Only companies with contracts and private persons can bring their waste to the landfill site. The waste acceptance procedure at the landfill site is the following:

1. Waste arriving at the weighing bridge can be processed in three ways.
  - a) In case of waste delivered from private persons, the waste is visually checked. If the waste is accepted at the landfill site, the weight is taken before and after unloading.
  - b) In case of waste delivered from companies with a swipe card, this is used to transfer all necessary data as waste producer, vehicle registration number and weight to the computer system. With the swipe card the company is identified and a list of waste types acceptable at the landfill according to the contract with the client appears on the computer screen. The weighing bridge operator selects the waste type of the waste which is delivered.
  - c) In case waste is delivered from companies without a swipe card, the driver of the waste submits the needed information verbally. The EWC code is also transposed verbally but can be chosen in the computer system out of a list of waste, which includes all EWC codes from the contracts with every company.

On-site verification at the weighing bridge only occurs if the transport is open on top and a visual control is possible from the working place of the weighing bridge operator which is elevated. In case of private persons or if the driver needs a documentation a corresponding weighing bridge

document “DZZD “EPPS”” is filled in. The document includes the EWC code, date and time of arrival, net weight and a signature of the weighing bridge operator.

2. Depending on the waste the driver is send to one of the three possible locations:
  - a) Inert waste disposal site,
  - b) Non-hazardous waste disposal site,
  - c) Hazardous waste cells.

Unloading is only visually controlled at the non-hazardous waste landfill site and the hazardous cells. The hazardous cells are locked and only hazardous wastes in closed containers are accepted.

3. At the weighing bridge the waste carrier is weighted again and entered into the computer system either with the support of the swift card or by manual correlation.

Once a month each company costumer receives a monthly overview of their disposed waste. This list is used for the invoice.

The information is stored electronically without time limit.

#### Basic characterisation

The basic characterisation is prepared by the waste delivering company except for household waste. None of the basic characterisation includes chemical analyses as the composition of the accepted wastes is not considered hazardous and a co-disposal of non-hazardous waste and hazardous waste takes place.

#### Compliance testing

Compliance testing is not performed. The explanation of the landfill operator is that non-hazardous waste is not co-disposed with hazardous waste and therefore the leaching limit values are not in force and according to the landfill operator compliance testing would not seem reasonable.

To skip compliance testing and the corresponding analyses in case of a mere non-hazardous waste disposal (without stable non-reactive hazardous waste) is in accordance with the Bulgarian Ministry of Environment.

*Remark: However some waste types which are disposed of at this landfill site would require testing for the basic characterisation as well as for compliance testing, because none of the exceptions for testing, as stated in Section 1.4 of the Annex to the WAC Decision, is given. Anyway the results of compliance testing do not have to be compared with limit values due to the mere non-hazardous waste disposal on a landfill site for non-hazardous waste. The result is that the analyses should have to be done anyway due to the WAC Decision and Bulgarian legislation, implementing literally the WAC Decision requirements.*

On-site verification

On-site verification is performed by the weighing bridge operator as well as by an employee on the disposal sites for non-hazardous or hazardous waste. Waste disposed of at the inert waste disposal site is checked several times a day. In case unacceptable waste is detected, this waste is gathered and transported to the non-hazardous waste landfill. During the visit some plastic and rubber foam waste could be seen at the inert waste disposal site.

Expert proposals related to potential modifications of the WAC

There are no proposals for the WAC Decision.

### 1.1.2.3 Site visit to representative non-hazardous and hazardous waste landfill (LUOIL, landfill class B and C)

#### General terms

The landfill site of Lukoil started operating in 2008. It consists of a stabilisation unit and 22 cells for non-hazardous and hazardous waste. These cells have formally been used as oil tanks and have been modified for disposal use. In the moment two of the cells are used for disposal. One of the former oil tanks is used for the disposal of mineral wool, packed in big bags (non-hazardous waste). This waste is disposed of by placing the big bags with a crane in the reservoir. The second cell is used as a reservoir for non-hazardous waste, hazardous waste and stabilised non-reactive hazardous waste blocks. The base area of the second cell is separated into 10 sections. 9 of these sections are used for the disposal of stabilised hazardous waste blocks and the final section is used for loose non-hazardous and hazardous waste.

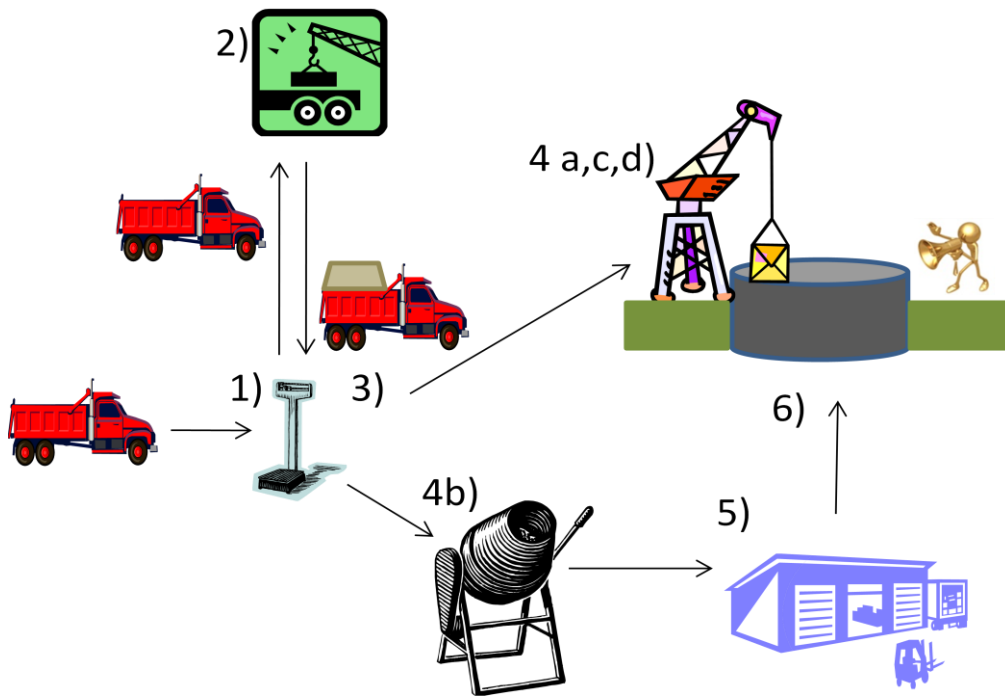
All loose non-hazardous wastes and hazardous wastes are from LUKOIL. A basic characterisation has been performed and a compliance testing is done once a year. All hazardous waste which can be stabilised is treated in a stabilisation facility. These wastes are ashes, calcium carbonate, sorbents, metal contaminated sands and catalyst layers not containing metal. The stabilised block consists of a mixture of waste, cement and water which is sufficiently solidified for disposal after 21 day. For the production of the stabilised blocks metal moulds are used. The resulting stabilised blocks have a weight of about 1.6 to 2.0 t and contain about 80 % of waste. Such waste can also be delivered by external companies. These companies have formerly been part of LUKOIL, but split from LUKOIL in the last years. For the stabilisation 10 mixtures have been developed. For all of the 10 mixtures a basic characterisation has been done, but only two of these are practically used in the moment. To one of these mixtures additional waste in the amount of 60 kg can be added homogeneously to the mixture (metal or plastic parts), which has been considered in the basic characterisation. In case of the second mixture small bulky waste (e.g. glass phials from gas analyses) can be manually added into the core of the cubes. After the lower half has been solidified the bulky waste is added and additional waste, cement water mixture is poured over the semi finished cube to create the final block.

The blocks are stored for 21 day. Then the metal mould is removed and the blocks are disposed in the reservoir.

Once a reservoir is filled, the next one starts operation. In the moment an additional reservoir is already prepared and another will be ready next year. The reservoirs have a capacity of 10,000 m<sup>3</sup>. It has been calculated that it will take about 1.5 years to fill the reservoir. However, due to two incineration plants lately installed, the amount of waste arriving at the landfill is declining. Hence, each reservoir can be used for about four years. As two reservoirs are operated at the same time the duration of the landfill site can cover about 44 years.

Only external companies with a contract can deliver their waste to the stabilisation facility.



Waste acceptance procedure

**Figure 1.1-5: Flow chart of the waste acceptance procedure at Lukoil, Burgas (Bulgaria)**

There are two processes for the disposal of waste at the landfill site of Lukoil. The waste acceptance procedure at the landfill site is the following:

Non-hazardous and hazardous waste is either directly disposed of or the waste is stabilised before disposal.

1. The lorry is weighted before loading at a weighing bridge of the waste producer (either internal or external). The waste producers are all located at the premises of Lukoil and are former sections of Lukoil. This weight is taken and recorded by the computer system.
2. The lorries are sent to the waste collection point and are loaded with the waste.
3. After the loading the lorries proceed to the weighing bridge. The weight is taken by the computer system and the net weight is calculated. This weight is entered into the waste document "Zertifikat na otpadka". This document is stamped and signed by the weighing bridge operator, waste owner, lorry driver and landfill operator. The document also includes data as destination of the waste, EWC code, waste contents and a description if the waste is non-hazardous or hazardous.
4. The driver of the waste signs the waste document and transports it to its foreseen destination.
  - a) Loose hazardous waste or hazardous waste which cannot be stabilised as well as non-hazardous waste can be sent directly to the reservoir. An employee controls the deposition of the waste and signs and stamps the waste document.
  - b) Loose hazardous waste which can be stabilised is sent to the stabilisation facility where the waste is stored for the production of stabilised concrete blocks. At the stabilisation facility,

the waste is disposed of at the storage areas. The deposition is controlled by the landfill operator which signs and stamps the waste document.

- c) Non-hazardous waste is disposed of directly in the reservoir. An employee controls the deposition of the waste and signs and stamps the waste document.
  - d) Mineral wool is disposed of in a separate reservoir. An employee controls the deposition of the waste and signs and stamps the waste document.
5. After the production of the concrete blocks they are stored for curing in a storage area.
  6. After the concrete blocks are stabilised they are disposed of at the reservoir for hazardous waste.

#### Basic characterisation

For all hazardous and non-hazardous wastes a basic characterisation has been made as well as for each of the stabilised products resulting from the 10 mixtures.

#### Compliance testing

Compliance testing is performed at least once a year.

#### On-site verification

At every place of unloading a visual inspection takes place. As all the accepted waste is from the same factory premises a visual control at the weighing bridge is not necessary.

#### Expert proposals related to potential modifications of the WAC

There are no proposals for the WAC Decision.

## 1.2 Country Report Cyprus

The WAC Decision has nearly been literally transposed into the Cyprus legislation. Anyway some additional criteria which have to be set by the Member states have not been implemented yet.

- There is not specific reference regarding the responsibility of carrying out the basic characterisation;
- There is no specific minimum testing requirement defined for the basic characterisation;
- Criteria for monolithic waste to be landfilled in landfills for non-hazardous waste have not been set yet;
- Physical stability and bearing capacity are not set;
- PAH limit value is not set;
- ANC does not have to be evaluated.

### 1.2.1 Legal assessment

Table 1.2-1 provides an overview on the legal documents transposing the WAC Decision requirements into national legislation. Furthermore, the table shows a qualitative assessment of the level of implementation or possible divergences which are further explained and justified in the following sections.

Cyprus			
Category	Corresponding national legislation	Implementation	Comments
1. Procedure		~	
1.1 Basic Characterisation	Regulatory Administrative Act (R.A.A.) 282/2007, Section 1.1.	✓	
1.1.1 Function	Regulatory Administrative Act (R.A.A.) 282/2007, Section 1.1.1.	~	Missing reference, as regards who is in charge for basic characterisation
1.1.2 Fundamental requirements	R.A.A. 282/2007 Section 1.1.2.	✓	
1.1.3 Testing	R.A.A. 282/2007 Section 1.1.3.	~	no specific minimum testing requirement set
1.1.4. Cases where testing is not required	R.A.A. 282/2007 Section 1.1.4	✓	
1.2 Compliance Testing	R.A.A. 282/2007 Section 1.2	✓	
1.3 On-site verification	R.A.A. 282/2007 Section 1.3.	✓	
2. Acceptance Criteria	R.A.A. 282/2007 Section 2.	✓	
2.1 Landfills for inert waste	R.A.A. 282/2007 Section 2.1.	✓	
2.1.1 Short list	R.A.A. 282/2007 Section 2.1.1	✓	
2.1.2 Limit values	R.A.A. 282/2007 Section 2.1.2.	✓	
2.1.2.1 Leaching limit values	R.A.A. 282/2007 Section 2.1.2.1.	✓	
2.1.2.2 Limit values for total content of organic parameters	R.A.A. 282/2007 Section 2.1.2.2.	~	PAH limit value is not set
2.2 Landfills for non-hazardous waste	R.A.A. 282/2007 Section 2.2	✓	
2.2.1 Without testing	R.A.A. 282/2007 Section 2.2.1	✓	
2.2.2 Limit values for non-hazardous waste	R.A.A. 282/2007 Section 2.2.2	~	Criteria for monolithic waste is not set
2.2.3 Gypsum waste	R.A.A. 282/2007 Section 2.2.3	✓	
2.3 Criteria for hazardous waste acceptable at landfills for non-hazardous waste, Art 6 c iii	R.A.A. 282/2007 Section 2.3	✓	
2.3.1 Leaching limit values	R.A.A. 282/2007 Section 2.3.1	~	Criteria for monolithic waste is not set
2.3.2 Other criteria	R.A.A. 282/2007 Section 2.3.2	~	Evaluation of ANC is not stated and physical stability and bearing capacity are not set. Criteria for monolithic waste is not set
2.3.3 Asbestos waste	R.A.A. 282/2007 Section 2.3.3	✓	
2.4. Landfills for hazardous waste	R.A.A. 282/2007 Section 2.4	✓	

Cyprus			
Category	Corresponding national legislation	Implementation	Comments
2.4.1 Leaching limit values	R.A.A. 282/2007 Section 2.4.1	~	Criteria for monolithic waste is not set
2.4.2 Other criteria	R.A.A. 282/2007 Section 2.4.2	~	Evaluation of ANC is not stated
2.5 Criteria for underground storage	R.A.A. 282/2007 Section 2.5	✓	

**Table 1.2-1: Implementation of WAC Decision requirements in Cypriot Legislation**

### 1.2.1.1 *Legal framework*

The WAC is nearly literally implemented into the national legislation of Cyprus by:

- **Regulatory Administrative Act 282/2007** (herein referred to as R.A.A. 282/2007) and
- **Regulatory Administrative Act 562/2003** (herein referred to as R.A.A. 562/2003).

Further implementations of the WAC Decision are included in the 21<sup>st</sup> Regulation of the Regulation for Solid and Hazardous waste.

The landfills are classified according to the Landfill Directive 1999/31/EC

### 1.2.1.2 *Acceptance Procedure*

#### Basic Characterisation

Basic Characterisation is implemented into the national legislation by section 1.1 of the R.A.A. 282/2007. Based on this regulation, **there is not any specific reference, as regards who is in charge for basic characterisation. In addition, there is not any specific minimum testing requirement set by this regulation.** Under section 1.1.1 §4 record for basic characterisation shall be kept for 3 years.

#### Compliance testing

Compliance testing is implemented into the national legislation by section 1.2 of the R.A.A. 282/2007. Under 1.2. §7 it is stated that records for compliance testing shall be kept for 3 years.

#### On-site verification

On-site verification is implemented into the national legislation by section 1.3 of the R.A.A. 282/2007. A determination of testing requirements or rapid test methods is not noted. Time of sample keeping from on-site verification is defined for no less than one month.

### 1.2.1.3 *Waste Acceptance Criteria*

In general, similar limit values according to the WAC are implemented in section 2 of the R.A.A. 282/2007.

**Criteria for monolithic waste to be landfilled have not been set yet.**

Sampling and Test Methods are literally implemented into the national legislation by section 3 of the R.A.A. 282/2007. However, no proper sampling plan is still developed or run. Based on Section 3 § 2 of R.A.A. 282/2007, site operator or waste holder have the responsibility for carrying out sampling and/or testing. Section 3 § 5 of R.A.A. 282/2007 clearly states that “as long as a CEN standard is not available as formal EN, competent authority will use the draft CEN standard, when it has reached the prEN stage”, excluding national standards, in the contrary with corresponding EU regulation. Recommended methods are defined by Section 3 § 5 of R.A.A. 282/2007.

### Criteria for landfills for inert waste

Criteria for landfills for inert waste are implemented by section 2.1. on the R.A.A. 282/2007. As regards leaching limit values and limit values for total content of organic parameters, they are implemented by section 2.1.2.1. and 2.1.2.2., respectively. They are exactly the same with those which are set by the WAC. **The PAH limit value has not been set.**

### Criteria for landfills for non-hazardous waste

Waste accepted on landfills for non-hazardous waste is literally implemented by section 2.2. on the R.A.A. 282/2007. All the columns of the leaching limit value have been transposed. Section 2.2.3. of the R.A.A. 282/2007 implements the proper deposition of gypsum based materials.

### Criteria for hazardous waste acceptable at landfills for non-hazardous waste

Hazardous waste accepted on landfills for non-hazardous waste is literally implemented by 2.3. of R.A.A. 282/2007. All the columns of the leaching limit value have been transposed. Section 2.3.3. of the R.A.A. 282/2007 implements the proper deposition of construction materials containing asbestos and/or other suitable asbestos waste. **It is not defined, that the ANC has to be evaluated.**

Concerning the obligation to ensure that the waste has sufficient physical stability and bearing capacity and to ensure that monolithic waste is stable and non-reactive before acceptance at a landfill, Section 2.3.2. § 2 and 3 of R.A.A. 282/2007 refers to Article 21 of the R.A.A. 562/203. Article 21 of the R.A.A. 562/203 sets powers and responsibilities of the competent authority regarding Landfill Facilities but **the exact way for ensuring the physical stability and bearing capacity of waste and monolithic waste to be stable and non-reactive is still not legally set.**

### Criteria for waste acceptable at landfills for hazardous waste

Waste accepted on landfills for hazardous waste is implemented by section 2.4. on the R.A.A. 282/2007. No additional limit values are defined by this regulation. **It is not defined, that the ANC has to be evaluated.**

### Underground storage

Waste accepted for underground storage is implemented by section 2.5. on the R.A.A. 282/2007. Moreover, Appendix A of the specific regulation regards to the safety assessment for acceptance of waste in underground storage.

### 1.2.2 Site visits

The organisation of the site visit has been realised in close cooperation with the Ministry of Agriculture, Nature Resources and Environment of Cyprus which recommended visiting the landfill sites at Koshi and Paphos.

#### General overview of the current waste management situation of Cyprus

There have been 113 semi-controlled landfill sites in Cyprus. In the last five years new, EU conform landfill sites have been opened and a country wide organisation of a proper waste management has started. Due to the opening of the first proper landfill site in Paphos five years ago, about 30 of this semi-controlled landfills could be closed. Further closings with continuing installation of the waste management system are planned. It is planned that in the next five years the whole waste management system for household waste will be implemented and that all the semi-controlled landfills will be closed.

The waste management plan foresees that four landfill sites will be installed to cover the island. The sites are and will all be controlled by the Ministry of interior of the Republic of Cyprus. Each of the landfill sites will have a treatment plant nearby to sort the waste and decrease the amount of waste to be disposed of. The delivery of household waste from close by villages and municipalities will be done directly, whereas for the villages and municipalities further away transfer-stations will be installed. The purpose of the transfer-stations is that the waste collection can be performed by relatively small collection vehicles which deliver the waste to the transfer station. From there the waste will be reloaded onto bigger collection vehicles to transfer the waste to the corresponding treatment plant.

Larger municipalities have their own fleet of collection vehicles, whereas the waste from smaller companies is collected by assigned waste collecting companies.

Up to now, the landfill site of Larnaca and Famagusta as well as the corresponding treatment plant has started operation and two corresponding transfer station are about to start operation soon.

The landfill site of Paphos with one operating transfer station has already been installed. A corresponding treatment plant will be installed in the following 3-4 years.

Additional plans for installing 65 civic amenity sites so called "green points" all over the Republic are ongoing.

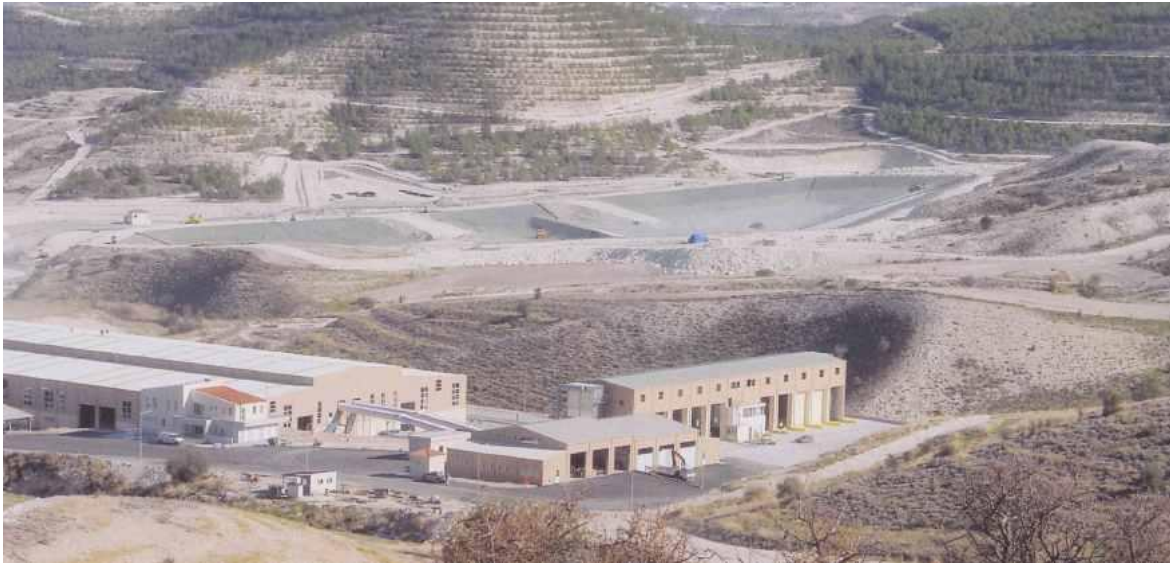
It is planned that asbestos waste will be packed, sealed in containers and disposed of at an area where asbestos has been mined in the past.

There are also plans ongoing how the Republic of Cyprus will handle their hazardous waste but a final solution has yet not been found.



### 1.2.2.1 Site visit to representative household waste landfill Koshi (landfill class B)

#### General terms



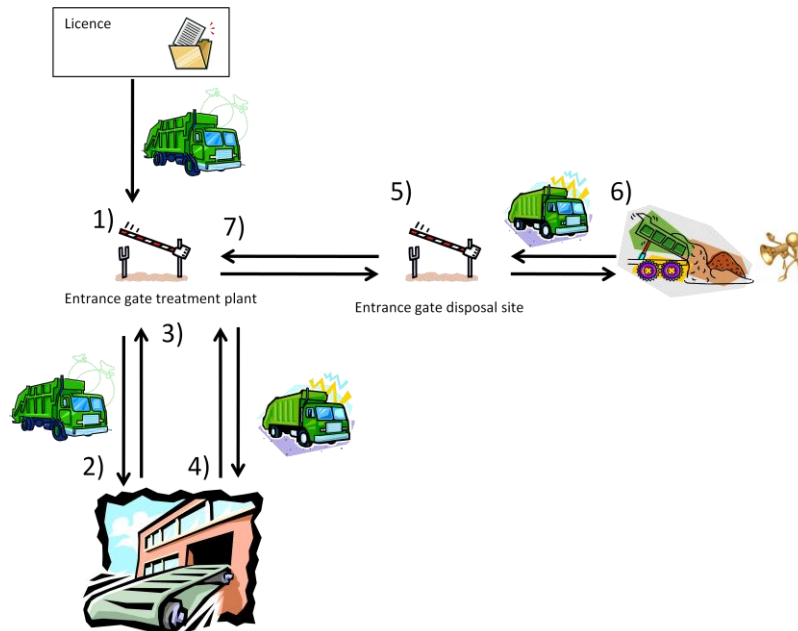
The landfill site of Koshi is located about 15 km north of Larnaka. The owner and operator of the landfill site is the Republic of Cyprus. The landfill site started operation in April 2010. The total area of the landfill site is 60 ha. In this area a treatment plant and the landfill sites have been installed. Each of them has a separate entrance gate and weighing bridge. The only waste which is currently accepted at the landfill site is directly coming from the treatment plant. The waste delivered to the treatment plant is coming either directly from nearby municipalities and villages or from two transfer stations, which are each about 30 km away. There are about 20 waste collector companies and municipalities which collect the waste to transport it the treatment plant. All of them have to be licensed by the Republic of Cyprus. All the waste which is delivered to the landfill site is household waste which does not need a basic characterisation or compliance testing.

The waste delivered to the treatment plant is separated into three main fractions with each a share of 30-35 %. One fraction is compost of which two different qualities are produced. The first is high quality compost which can be sold. The second is of a quality, which can be used for reclamation and forestry. The second fraction of the treatment plant is secondary raw material which further differentiated into plastic, plastic foil, paper and paper board and aluminium and plastic tins. The third fraction is sent to the disposal site. The treatment plant is also equipped with a shredder for bulky waste.

The disposal site consists of two phases. The first phase which is already installed has a capacity of about 1,450,000 m<sup>3</sup> and will operate for about 12-13 years. The second phase has approximately the same dimension. The disposal site is also equipped with a leachate and landfill gas collection system. The leachate is cleaned in a waste water treatment plant and the water from the waste water treatment plant is used to water the plants on the area of the landfill site. For the landfill gas a flare

has been installed. It is expected that the landfill gas collection will reach a maximum of 1.235 m<sup>3</sup> in about 20 years.

### Waste acceptance procedure



**Figure 1.2-2: Flow chart of the waste acceptance procedure at new sanitary landfill site Koshi (Cyprus)**

Only licensed waste collection companies and municipalities which have a contract with the landfill site are allowed to transport their waste to the landfill site.

1. Waste delivered to the landfill site has to enter at the weighing bridge of the landfill side. They use a swipe card which transfers all necessary data as location of waste collection and vehicle registration number to the computer. A waste delivery paper is prepared by the waste collection company or the municipality is passed to the weighing bridge operator which includes the same data. The information is compared and the entrance weight is taken. Then the driver is send to the waste accepting station. As all the arriving waste is transported in closed lorries a visual inspection of the waste is not possible.
2. At the waste acceptance station a light (green/red) shows the driver which gate he has to move towards to. The doors are automatically opened and the waste is unloaded.
3. On the way out, the lorry is weighted again at the weighing bridge and a weighing bridge document is printed out. The weighing bridge document is signed by the weighing bridge operator. One copy is given to the driver and one is kept at the weighing bridge which is stacked with the waste delivery paper and stored.

4. The waste is moved to the MBT and after the treatment the waste which shall be landfilled is loaded onto a truck. At the way out of the treatment plant the weight is measured and additional data as date and vehicle registration number is taken.
5. The waste transporter passes the weighing bridge of the disposal site. The transporter is not weighted, as this has already been done at the weighing bridge of the treatment plant. The weighing bridge at the disposal side is assigned for weighing external waste transporters. As mentioned above, in the moment only waste transporters from the treatment plant are accepted to enter the disposal site. A weighing bridge operator controls that only waste transports from the treatment plant enter the disposal site.
6. The waste load is disposed of at the landfill. The process is controlled by two employees of the landfill site, which is the driver of the compactor and an employee also in charge of instructing the waste load driver to the correct position.
7. After the unloading, the driver of the waste transporter moves back to the weighing bridge of the treatment plant for a second weighing.

The information, weighing bridge document and waste delivery paper is stored for about four month. The information of the computer system is stored without time limit. The information is forwarded to headquarter and is used for a monthly report to the Ministry of interior.

#### Basic characterisation

No basic characterisation is required as all accepted waste is household waste.

#### Compliance testing

No compliance testing is required as all accepted waste is household waste.

#### On-site verification

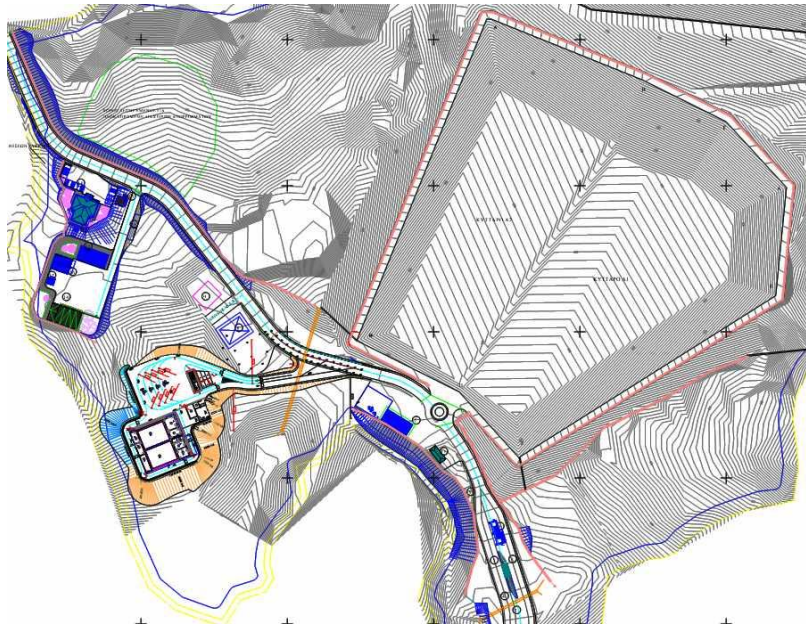
On-site verification is performed at the active phase of the landfill site by two employees. These two employees are the driver of the compactor and the employee who is in charge to instruct the waste driver to the correct position.

#### Expert proposals related to potential modifications of the WAC Decision

There are no proposals for the WAC Decision.

### 1.2.2.2 Site visit to representative household waste landfill Paphos (Paphos, landfill class B)

#### General terms



**Figure 1.2-3: Overview of the non-hazardous Marathounda Disposal site at Paphos (Cyprus)**

The landfill site of Paphos is located about 7 km east of Paphos. It started operation in May 2005. The Republic of Cyprus is the owner of the landfill site. The landfill site consist of a shredder unit a waste water treatment plant and a landfill gas collection system.

The area of disposal consists of two phases. The first phase consists of three sections. Section A with a capacity of about 300,000 m<sup>3</sup> has already been filled. In the moment waste is disposed of in section B with a capacity of about 260,000 m<sup>3</sup>, which will be filled in about 5 years. Once section B is filled, a third section with a capacity of 210,000 m<sup>3</sup> will be started on top of section A and B. Further planning for disposal is phase 2, are divided into two sections. One section on each side of phase 1. The first section of phase 2 will have a capacity of about 245,000 m<sup>3</sup> and the second section will have a capacity of about 350,000 m<sup>3</sup>. Due to the increased area of the base of phase 1 resulting from the added phase 2 additional sections can be created on top.

The only waste which is accepted at the landfill site is municipal solid waste, which is either brought directly or from a transfer station at Polis about 30 km in the north.

4 municipalities and about 5 private waste collection companies have a licence to transport the waste to the landfill site. The private waste collection companies are hired by smaller municipalities or villages for whom it is not economically feasible to have an own collection fleet. It is planned that in the following 3-3.5 years a treatment plant, at least as efficient as the treatment plant of the landfill site Koshi, will be installed. This will decrease the disposed waste by about two third and will increases the operation time of each section of the phases.

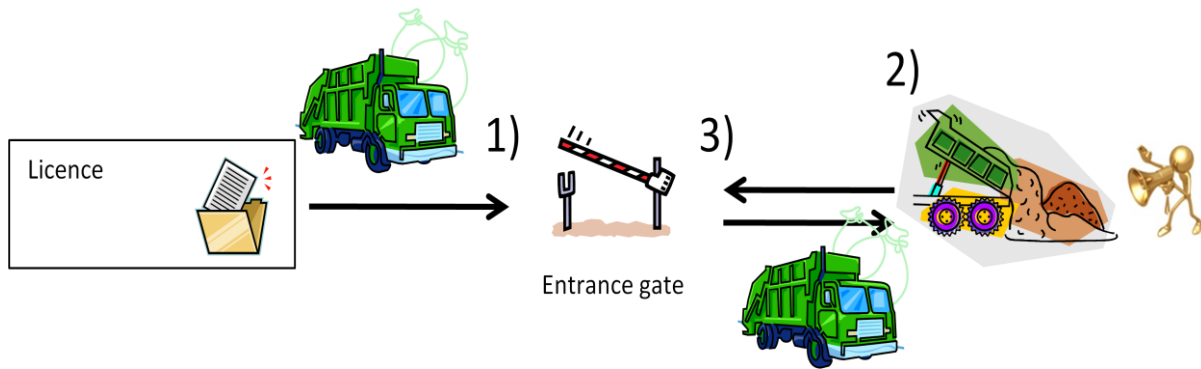
#### Waste acceptance procedure

European Commission

Draft Final Report

Assessing legal compliance with and implementation of the Waste Acceptance Criteria and procedures of the EU-12

**BiPRO**



**Figure 1.2-4: Flow chart of the waste acceptance procedure at Marathounda Disposal site at Paphos (Cyprus).**

Only licensed waste collection companies and municipalities which have a contract with the landfill site are allowed to transport their waste to the landfill site.

1. Waste delivered to the landfill site has to enter at the weighing bridge of the landfill side. A swipe card which transfers all necessary data as location of waste collection, vehicle registration number to the computer, is used. A waste delivery paper prepared by the waste collection company or the municipality is passed to the weighing bridge operator which includes the same data. The information is compared and the entrance weight is taken. The driver is then sent to the waste accepting station. As all the arriving waste is transported in closed lorries a visual inspection of the waste is not possible.
2. The waste load is disposed of at the disposal site. The process is controlled by two employees of the landfill site, which is the driver of the compactor and an employee, who is also in charge of instructing the waste load driver to unload the waste at the correct position.
3. On the way out, the lorry is weighted again at the weighing bridge and a weighing bridge document is printed out. The weighing bridge document is signed by the weighing bridge operator. One copy is given to the driver and one is kept at the weighing bridge which is stacked with the waste delivery paper and stored.

The information, weighing bridge document and waste delivery paper is stored for about 4 month. The information of the computer system is stored without time limit. These information are send to headquarter and are used for a monthly report to the ministry.

#### Basic characterisation

No basic characterisation is required as all accepted waste is household waste.

#### Compliance testing

No compliance testing is required as all accepted waste is household waste.

#### On-site verification

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On-site verification is performed at the active phase of the landfill site by two employees. These two employees are the driver of the compactor and the employee who is in charge to instruct the waste driver where to unload the waste.

*Expert proposals related to potential modifications of the WAC Decision*

There are no proposals for the WAC Decision.

### 1.3 Country Report Czech Republic

Guidance documents on application of Czech legislation are available online ([http://www.mzp.cz/cz/metodicke\\_pokyny\\_legislativa](http://www.mzp.cz/cz/metodicke_pokyny_legislativa)).

Some divergences to the WAC decision could be detected:

- Regularly generated waste and non-regularly generated waste are not well defined;
- A batch leaching test is not set as obligatory for compliance testing;
- It is not explicitly stipulated that a visual inspection has to be performed before and after unloading. The period of record keeping of on-site samples is not defined;
- No pH value is set in the footnotes in the list of organic parameter for inert waste, as given in Section 2.3.2;
- The term “monolithic waste” is not used;
- The term “stable”, non-reactive waste is not used;
- The leaching limit values are partially divergent;
- Waste code 191205 is not included in the short list;
- Not all footnotes from the tables of the leaching limit values are transposed.

### 1.3.1 *Legal assessment*

Table 1.3-1 provides an overview on the legal documents transposing the WAC Decision requirements into national legislation. Furthermore the table shows a qualitative assessment of the level of implementation or possible divergences which are further explained and justified in the following Sections.

Czech Republic			
Category	Corresponding national legislation	Implementation	Comments
1. Procedure		~	
1.1 Basic Characterisation	§2q), Section 1, Chapter I and Annex 1, Decree No. 294/2005	✓	
1.1.1 Function	Annex 1, §2 and 3, Decree No. 294/2005	✓	
1.1.2 Fundamental requirements	Annex 1, §2 and 3, Decree No. 294/2005	~	Subsection k) of Section 1.1.2. of the annex to the WAC Decision is not completely transposed.
1.1.3 Testing	Annex 1, §2-4 Decree No. 294/2005	~	Regularly generated waste and non-regularly generated waste are not well defined.
1.1.4. Cases where testing is not required	Annex 8, Decree No. 294/2005	✓	
1.2 Compliance Testing	Annex 1 and 4; §2, Chapter II, Section 4, Decree No. 294/2005	~	A batch leaching test is not set as obligatory for compliance testing.
1.3 On-site verification	Annex 1, §1, Decree No. 294/2005	~	It is not explicitly stipulated that a visual inspection has to be performed before and after unloading.
2. Acceptance Criteria	Annex 2, 4 and 7, Decree No. 294/2005;	✓	
2.1 Landfills for inert waste	§2 a), Section3, Chapter II, and Annex 8, Table 8.1, Decree No. 294/2005	~	
2.1.1 Short list	Annex 8, Table 8.1, Decree No. 294/2005	+	The list is shortened: waste code 191205 is missing. It is not mentioned in this Annex that the waste may be deposited together with other waste, but in Annex 3 the miscibility of waste stored in landfills is specified to ensure that no unwanted chemical reactions occur.
2.1.2 Limit values	Annex 2, Table 2.1 and Annex 4, Table 4.1 and §5, Decree No. 294/2005	~	
2.1.2.1 Leaching limit values	Annex 2, Table 2.1, Decree No. 294/2005	+	Footnote (*) and (**) are not implemented.



Czech Republic			
Category	Corresponding national legislation	Implementation	Comments
2.1.2.2 Limit values for total content of organic parameters	Annex 4, Table 4.1 and §5, Decree No. 294/2005	~	The footnote (*) is not fully transposed as <b>no pH value is set.</b>
2.2 Landfills for non-hazardous waste	§2, Section3, Chapter II, Decree No. 294/2005	~	
2.2.1 Without testing	Annex 8, Table 8.1 Decree No. 294/2005	✓	
2.2.2 Limit values for non-hazardous waste	Annex 7 and 2, Table 2.1, column IIa, Decree No. 294/2005,	~	<b>Some of the leaching limit values for the subcategory S-OO1, allowing disposal of asbestos waste, are higher than set in the WAC Decision.</b>
2.2.3 Gypsum waste	§2 b), Section3, Chapter II, Point 3 Decree No. 294/2005	✓	
2.3 Criteria for hazardous waste acceptable at landfills for non-hazardous waste, Art 6 c iii	Point 2, §2 b), Section3, Chapter II Chapter II and Point o), Section 2, Chapter I, Decree No. 294/2005; Annex 7, Decree No. 294/2005	~	
2.3.1 Leaching limit values	Annex 2, Table 2.1, column IIb, Decree No. 294/2005	✓ <b>(after April 2012: ~)</b>	<b>With the amendment the subcategories SOO-1 and SOO-2 will be merged together and the leaching limit values of S-OO1 will apply solely. However, the leaching limit values are higher than set for the WAC Decision.</b>
2.3.2 Other criteria	Annex 2, Table 2.1 and Annex 4, §7c), Decree No. 294/2005	~	<b>Criteria for physical stability and bearing capacity is not set. It is not explicitly stipulated that the ANC value has to be evaluated.</b>
2.3.3 Asbestos waste	Point1-3, §2b), Section 3, Chapter II and §1 and §3, Section 7, Chapter III , Decree No. 294/2005	✓	
2.4. Landfills for hazardous waste	Point 3, §2, Chapter II and Annex 2, Table 2.1, Decree No. 294/2005; Annex 7, Decree No. 294/2005	✓	
2.4.1 Leaching limit values	Annex 2, Table 2.1, column III, Decree No. 294/2005	+	Footnote (*) and (***) are not transposed.
2.4.2 Other criteria	Annex 4, §9c), Decree No. 294/2005	~	<b>In Footnote (***) no pH is mentioned. It is not explicitly stipulated that the ANC</b>

Czech Republic			
Category	Corresponding national legislation	Implementation	Comments
			value has to be evaluated.
2.5 Criteria for underground storage	Decree No. 99/1992 Decree No. 104/1988, Annex No. 12	✓	

**Table 1.3-1: Implementation of WAC Decision requirements in Czech Legislation**

### 1.3.2 *Legal framework*

The WAC Decision has been transposed into Czech legislation by:

**Decree No. 294/2005 of 17th July 2005 “on the conditions of depositing waste in landfills and its use on the surface of the ground”** (hereinafter referred to as Decree No. 294/2005) including its amendment.

**Decree No. 99 of 20 February 1992 “on the establishment, operation, safeguarding and disposal facilities for disposal of waste in underground storage”** (hereinafter referred to as Decree No. 99/1992) as well as the

**Decree No. 104 of 1988 on Rational Exploitation of Reserve Deposits, on Permitting and Notification of Mining and Notification of Activities Carried out by Mining** (hereinafter referred to as Decree No. 104/1988).

In the first sentence of Decree No. 294/2005 it is mentioned that “this Decree implements the relevant regulations of the European Communities [Landfill Directive and WAC Decision establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 6 of the WAC Decision and Annex II of the Landfill Directive] and in accordance with them stipulates [...]” all relevant aspects (see Points a)-i), Section 1, Chapter I).

According to Chapter II, Section 3, §2 of the Decree No. 294/2005, additional subcategories for non-hazardous landfills are defined.

The landfill classes are implemented as follows:

- Inert waste landfills:
  - Group S-inert waste, defined as S-IO for records and reporting.
- Non-hazardous waste landfills:
  - Group S-other waste, defined as S-OO with the following subcategories:
    - **S-001:** landfill or landfill sectors designated for the storage of waste in the “other waste” category containing low levels of organic biodegradable matter and waste containing asbestos,

- **S-002:** landfills or landfill sector designated for the storage of waste in the “other waste” category containing low levels of organic biodegradable matter, non-reactive hazardous waste and waste containing asbestos,<sup>1</sup>
  - **S-003:** landfills or landfill sectors designated for the storage of waste in the “other waste” category containing high levels of organic biodegradable matter, wastes that cannot be evaluated on the basis of their leachate, and waste containing asbestos. No plaster-based waste may be stored in these landfills or landfill sectors.
- Hazardous waste landfills:
    - Group S-hazardous waste, defined as S-NO for records and reporting.

### 1.3.2.1 Acceptance Procedure

#### Basic Characterisation

The requirements for basic characterisation are implemented by §2q), Section 1 and Annex 1 to Decree No. 294/2005.

All relevant information of the basic characterisation has to be kept for 5 years.

The fundamental requirements for basic characterisation are stipulated in §2 and §3, Annex 1 to the above mentioned decree. **Points and k) of §1.1.2 Fundamental requirements of the characterisation of the waste from the WAC Decision lack some detailed transposition into national legislation. The following short comings have been detected:**

k) **Is not fully transposed** as it is stated “a declaration that the waste may not be reused or otherwise disposed of on the basis of an assessment carried out in accordance with §11 Article 3 of the Act [concerning the method of using the financial reserve]”. Latter will be implemented by an amendment of Decree No. 383/2001 which lies down that the landfill operator must indicate how the competent authorities are informed that the waste cannot be reused. **The check if the waste can be recovered is not included.**

Additional information are the approximate volume of the delivered waste as well as the assumed mass and frequency of deliveries of waste.

As regards a clear differentiation between regularly generated and not regularly generated waste, this is only partly and indirectly implemented by the decree as there is no clear definition of procedures for not regularly generated waste but all standard acceptance procedures have to be considered.

#### Compliance testing

Compliance testing is implemented by Annex 1 and 4; §2, Chapter II, Section 4, Decree No. 294/2005, Point 11 of §2, Annex 1.

<sup>1</sup> Subcategory S-002 was cancelled by the amendment from 1st April 2010 of Decree No. 294/2005 which will enter into force with 1st of April 2012.

Compliance testing of waste which is regularly delivered by the waste producer has to be performed at least once a year.

Repeated irregular generated waste is defined as: Only single type with the same properties, created in the waste collection and purchasing facility through concentrating the same types of waste from different waste producers.

Compliance testing of all regular and repeated irregular generated waste – delivered by operators of a waste collection and purchasing facility – is performed twice a year. This exceeds the WAC Decision.

Time for record keeping for documents evidencing the quality of the waste received at the facility is set for five years (see Annex 1, §1.3).

There is not specifically stipulated that a leaching test is set as obligatory for compliance testing in Decree No. 294/2005.

#### On-site verification

On-site verification is implemented by §1, Annex 1, Decree No. 294/2005. Mandatory periodic sampling for on-going records to be kept are implemented (see §21 of Decree no.383/2001 Coll. on details of waste handling, amended by Decree 41/2005).

Time for record keeping for documents evidencing the quality of the waste received at the facility is set for five years (see Annex 1, §1.3).

Sample keeping is not set.

It is not explicitly stipulated that a visual inspection has to be performed **before** and **after** unloading. It is only stipulated in Czech legislation that the operator has to make a visual check of each waste delivery.

No rapid test methods are defined.

#### 1.3.2.2 Waste Acceptance Criteria

According to §10, §6, §9 and Table 4.1, Annex 4 to Decree No. 294/2005, the waste acceptance criteria are implemented with some minor divergences in comparison with the WAC Decision.

The leaching limit values are listed in Table 2.1 of Annex 2, to the Decree 294. Divergence: the chosen test method is CSN EN 12457-4 (838005), 10l/kg, but the indicated measuring unit is not the same (mg/l), therefore all defined limit values have to be multiplied by 10.

The possibility to accept higher limit values under certain circumstances is stipulated under §10, Annex 4 and is in line with the WAC requirements.

The highest admissible values which are set (Table 2.1, Annex 2) for the different groups of landfills may be exceeded to a maximum of three times of their level under the following conditions (see also Decree no. 383/2001 Coll., on details of waste management as amended by Decree no. 41/2005 Coll.):

- a) if all other requirements set forth in Annex 4 have been fulfilled,
- b) if a risk assessment (pursuant to §12, Article 4) shows that these higher levels do not increase the risk of endangering the environment,
- c) if this is specific waste from specific originators and detailed in the landfill standard operating procedures,
- d) in the case of inert waste, the highest values for the DOC, BTEX, PCB, TOC and hydrocarbon C<sub>10</sub>-C<sub>40</sub> indicators may not be exceeded,
- e) in the event that other waste and hazardous waste have been stored together in group S-OO landfills, the DOC indicator must not be exceeded nor may the pH value be changed,
- f) the DOC indicator value must not be exceeded in Group S – NO hazardous waste landfills,
- g) data for column F in the form contained in Annex no. 25 will be announced in a special legal regulation (Decree no. 383/2001 Coll. on details on waste management, as amended by Decree no. 41/2005 Coll.).<sup>2</sup> The column is envisaged to be part of a table regarding “Report of regional office/office of municipalities with extended competence on granted approvals and other decisions”.

For the TOC the highest admissible value is 3% of the indicator value which may only be exceeded in soil if the DOC value is 50 mg/l, i.e. 500 mg/kg.

The term “monolithic waste” is not used or defined in Czech legislation. However, specific criteria are given for construction and demolition wastes as well as wastes treated by stabilization methods in Annex 7, Decree No. 294/2005.

Annex 7 to Decree No. 294/2005 states that stabilised waste have to fulfil the requirements as stated in Table 2.1 of Annex no.2. to Decree 294 (including the leaching limit values for the different landfills) and Table 4.1. Annex No. 4 to Decree 294 (including the limit values of the total content of other organic parameter). Further it is regulated that for preparing its water leachate samples from loose treated waste shall be taken as pursuant in paragraph 1 of Annex no. 2 and in case of solid building materials from cylindrical shapes with a diameter of 4 cm and a mass of 100 g ± 10g. The term stabilisation is described in the physical-chemical treatment definition provided in section D9 of Annex 6 to the Decree No. 294/2005.

According to the Ministry of Environment both (C&D waste as well as stabilised waste) groups represent monolithic waste.

Further criteria of evaluation of C&D waste is laid down in the guidance document which the ministry has prepared in 2008.

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<sup>2</sup> In the moment of the legal assessment the corresponding amendment indicated by point g) has not been made.

Measurement	Czech standard
Characterisation of waste - Determination of total organic carbon (TOC) in waste	CSN/EN 13137
Characterisation of waste - Calculation of dry matter by determination of dry residue or water content	CSN/EN 14346
Characterisation of waste - Leaching; Compliance test for leaching of granular and sludges	CSN/EN 12457 1-4
Characterisation of waste - Digestion for subsequent determination of aqua regia soluble portion of elements in waste	CSN/EN 13657
Characterisation of waste - Microwave assisted digestion with hydrofluoric (HF), nitric (HNO <sub>3</sub> ) and hydrochloric (HCl) acid mixture for subsequent determination of elements in waste	CSN/EN 13656
Characterisation of waste - Analysis of eluates - Determination of pH, As, Ba, Cd, Cl-, Co, Cr, Cr(VI), Cu, Mo, Ni, NO <sub>2</sub> -, Pb, total S, SO <sub>4</sub> 2-, V and Zn	CSN/EN 12506
Characterisation of waste - Analysis of eluates - Determination of Ammonium, AOX, conductivity, Hg, phenol index, TOC, CN- easily liberatable, F-	CSN/EN 13370
Characterisation of waste - Determination of hydrocarbon content in the range of C10 to C40 by gas chromatography	CSN/EN 14039
Soil quality – Determination of dry matter and water content	CSN ISO 11465
Water quality. Determination of total pH	CSN ISO 10523
Water quality. Determination of 33 Elements by ICP-AES	CSN EN 11885
Water quality. Determination of arsenic	CSN EN 26595
Water quality. Determination of total arsenic	CSN EN ISO 11969
Water quality. Determination of barium by means AAS methods	TNV 757408
Water quality – Determination of cobalt, nickel, copper, zinc, cadmium,	CSN ISO 8288
Water quality. Determination of cadmium by atomic absorption	CSN ISO 5961
Water quality. Determination of chromium	CSN EN 1233
Water quality. Determination of copper by means of flameless AAS technique	TNV 757426
Water quality. Determination of total mercury	CSN EN 1483
Water quality- determination of total mercury by means of one-purpose AAS	TNV 757440
Water quality. Determination of trace elements using atomic absorption	ISO 15586
Water quality. Determination of nickel by means of flameless AAS techniques	TNV 757461
Water quality. Determination of lead by means of flameless AAS techniques	TNV 757467
Water quality. Determination trace elements using atomic absorption	ISO 15586
Water quality. Application of inductively coupled plasma mass. Determination of 62 elements	ISO 17294-2
Water quality. Determination of 33 elements by ICP-AES	CSN ISO 9965
Water quality. Application of inductively coupled plasma mass spectrometry	ISO 17294-2
Water quality. Determination of total zinc by means of flameless AAS technique	TNV 757497
Soil quality. Gas chromatographic determination of the content of volatile hydrocarbons, naphthalene and volatile halogenated hydrocarbons.	ISO15009:2002
Bodenbeschaffenheit. Gaschromatische Bestimmung des flüchtigen aromatischen Kohlenwasserstoffen, Naphthalin und Halogenkohlenwasserstoffen	Draft standard DIN ISO 15009
Water quality. Determination of chloride	CSN ISO 9297
Water quality. Determination of dissolved anions by liquid chromatography of ions	CSN EN ISO 10304-2
Water quality. Determination of chloride by flow analysis	CSN EN ISO 15682
Water analysis. Guidelines for the determination of total organic carbon (TOC) and dissolved organic carbon (DOC)	CSN EN 1484

Deutsche Einheitsverfahren zur Wasser-, Abwasser- und Schlammuntersuchung	(Draft standard): DIN 38414-17
Water quality – determination of phenol index	CSN ISO 6439
Water quality. Determination of dissolved fluoride, chloride, orthophosphate, bromide, nitrate and sulphate ions, using liquid chromatography of ions	CSN EN ISO 10304-1
Water quality. Determination of fluoride	CSN ISO 10359-2
Deutsche Einheitsverfahren zur Wasser-, Abwasser- und Schlammuntersuchung	DIN 38414-23
Bodenbeschaffenheit. Bestimmung der polyzyklischen aromatischen Kohlenwasserstoffe (PAK)	Draft standard DIN ISO 18287
Soil quality. Determination of polynuclear aromatic hydrocarbons	DIN ISO 13877
Properties of sludge. Determination of total selected polycyclic aromatic hydrocarbons using the HPLC method with fluorescent detection	TNV 758055
Deutsche Einheitsverfahren zur Wasser, Abwasser- und Schlammuntersuchung	DIN 38414-S20
Bodenbeschaffenheit. Bestimmung der Organochlorpestiziden und polychlorierten	DIN ISO 10382
Water quality. Determination of dissolved substances	CSN 757346
Water quality. Determination of dissolved fluoride, chloride, orthophosphate, bromide, nitrate and sulphate ions, using liquid chromatography of ions.	CSN EN ISO 10304-2
Properties of sludge- determination of loss on ignition on dry mass	CSN EN 12879
Ecotoxicity. Metodicky pokyn odboru odpadů ke determination of total ecotoxicity of waste (MZP Gazette 6/2003)	
Water quality. Determination of acute lethal toxicity of substances	CSN EN ISO 7346-2
Water quality. Determination of the inhibition of the mobility of Daphnia	CSN EN ISO 6341
Water quality. Fresh water algal growth inhibition test	CSN EN 28692
Soil quality. Sampling. Part 6: Guidance on the collection, handling and storage for the assessment of microbial processes in the laboratory	CSN EN 10381
Microbiology of food and animal feeding stuff- general microbiological tests	CSN ISO 7218 (including amendment 1)
Microbiology of food and animal feeding stuff – Preparation of test sampling suspension and decimal dilutions for microbiological examination.	CSN EN ISO 6887

**Table 1.3-2: Standards for the Czech Republic**

### Criteria for landfills for inert waste

Limit values for landfills for inert waste are listed in Table 2.1 (column I), Annex 2 to the Decree No. 294/2005 and fully compliant with the leaching limit values set by WAC Decision.

The limit value for PAH is 80 mg/kg of dried matter. 12 substances are tested (anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h)perylene, benzo(k)fluoranthene, fluoranthene, phenanthrene, chrysene, indeno(1,2,3-cd)pyrene, naphthalene and pyrene).

The short list including waste exempted from testing is shortened as the waste code 191205 is missing.

It is not mentioned in this Annex that the waste may be deposited together with other waste, but in Annex 3 the miscibility of waste stored in landfills is specified to ensure that no unwanted chemical reactions occur.

The footnotes (\*) and (\*\*) from the WAC Decision are not implemented and therefore additional exemptions for sulphate and DOC are not allowed.

**No pH value is set in the footnote of the table concerning the total content of other organic parameter**

#### Criteria for landfills for non-hazardous waste

The acceptance criteria defined for waste acceptable at landfills for non-hazardous waste are transposed in §2, Annex 7 and 8 of Decree No. 294/2005.

Concerning gypsum waste, it is only explicitly defined that no gypsum waste may be landfilled in landfills for non-hazardous landfills with a high level of organic biodegradable matter (e.g. S-OO3).

There is no ban to dispose of gypsum waste in landfills with low levels of organic biodegradable matter (S-OO1 and S-OO2). It is not mentioned if gypsum waste may not be landfilled in the same cell with non-hazardous waste with a low levels of organic biodegradable matter. Both landfill types fulfil the criteria set for TOC and DOC.

The determined leaching limit values are accordingly set for S-OO2.

The leaching limit values for S-OO1 and S-OO3 are much higher than those set for non-reactive, hazardous waste accepted at landfills for non-hazardous waste (S-OO2)<sup>3</sup>. S-OO3 is a subcategory which is not subject to the WAC Decision requirements, therefore the leaching limit values are not to be assessed. However, the leaching limit values set for S-OO1 are not in accordance with the WAC Decision as they allow the disposal of non-hazardous waste together with asbestos waste and should therefore be the same as for the current limit values set for S-OO2.

Concerning S-OO1 and S-OO3 the pH is set at 6 and the leaching limit values are defined as follows (mg/kg):

- As 25, Ba 300, Cd 5, Total Cr 70, Cu 100, Hg 2, Mo 30, Ni 40, Pb 50, Sb 5, Se 7, Zn 200, Fluoride 300, Sulphates 30,000, DOC 80,000.

The following leaching limit values for the subcategory S-OO1, allowing disposal of asbestos waste, are higher than set in the WAC Decision:

- As 25, Ba 300, Cd 5, Cr total 70, Cu 100, Hg 2, Mo 30, Ni 40, Pb 50, Sb 5, Se 7, Zn 200, Fluoride 300, Sulphates 30,000, DOC 80,000.

***With the amendment from 1st April 2010 of the Decree No. 294/2005 which enters into force on 1st April 2012, the subcategories S-OO-1 and S-OO-2 will be merged together and the leaching limit values of S-OO1 will apply solely. However, the leaching limit values are higher than set for the WAC Decision.***

Criteria for monolithic waste are defined in Annex 7, Decree No. 294/2005.

<sup>3</sup> Subcategory S-OO2 was cancelled by amendment from 1st April 2010 of the Decree No. 294/2005 which enters into force on 1st April 2012. Therefore,



### Criteria for hazardous waste acceptable at landfills for non-hazardous waste<sup>4</sup>

Criteria and leaching limit values for non-reactive hazardous waste are compliantly implemented in Annex 2, Table 2.1 and §2, Section 3, Chapter II as well as Point o), Section 2, Chapter I of Decree No. 294/2005. The other criteria are implemented by Annex 2, Table 2.1 and Point c) of §7 of Annex 4 to Decree No. 294/2005.

Hazardous waste to be disposed of at landfills for non-hazardous waste is defined as non-reactive hazardous waste and not explicitly as **stable**, non-reactive hazardous waste. The definition of non-reactive hazardous waste as laid down in §2, Decree No. 294/2005, is: "non-reactive hazardous waste pursuant to Section 4 Article a) of the Act, which, under normal climatic conditions, is not combustible, it is not easily soluble in water, neither does it react either physically or chemically with other waste or other things with which it comes into contact in the environment in which it is stored in any manner that might result in damage to the environment or pose a threat to human life".

Criteria for monolithic waste are defined in Annex 7, Decree No. 294/2005.

The existing divergences comprise the following aspects:

- **Physical stability and bearing capacity are not particularly mentioned in case of hazardous waste to be disposed of at landfills for non-hazardous waste (S-OO2).** From the 1st of April 2010 has taken effect the amendment of Decree No. 294/2005 which was cancelled and will enter into force on 1st of April 2012. Then the group of landfill S-OO2 (the conditions for landfilling hazardous waste into landfill for non-hazardous waste - § 4 article 7 letter b), c) and d) stay without any changes).
- The volume of TOC in the waste dried matter may not exceed 5%. The waste may be deemed to comply with the landfill acceptance criteria even when this highest admissible value has been exceeded under the condition that the DOC value is =80mg/l (represents 800 mg/kg compared to 1000 mg/kg from the WAC Decision). TOC content in the dried matter of waste that has been stabilized is not measured.
- The pH value is set at =6 in the English version. However, in Czech (original) version it is set compliantly at ≥ 6.

Criteria for asbestos waste are implemented by Point 1-3, §2b), Section 3, Chapter II and §1 and §3, Section 7, Chapter III and fully compliant with the WAC requirements.

### Criteria for waste acceptable at landfills for hazardous waste

The criteria defined for hazardous waste landfills (Point 3, §2, Chapter II and Table 2.1, Annex 2 to Decree No. 294/2005) are in accordance with the WAC Decision **except that the ANC does not have to be evaluated**. Criteria for monolithic waste are defined in Annex 7, Decree No. 294/2005.

<sup>4</sup> Subcategory S-OO2 was cancelled by amendment from 1st April 2010 of the Decree No. 294/2005 which enters into force on 1st April 2012. Conditions for the disposal of hazardous waste in S-OO landfills (non-hazardous landfills) as laid down in section 3 remain to be applied except for §4.

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### Underground storage

Criteria are transposed into Czech legislation by Decree No. 99 of 20 February 1992 on the establishment, operation, safeguarding and disposal facilities for disposal of waste in underground storage.

Decree No. 99/1992 (§ 3) lays down that that underground storage sites for waste may only accept waste fulfilling the criteria set out for the corresponding landfill class defined in Decree No. 294/2005.

Safety assessment for acceptance of waste in underground storage including geological, geomechanical, hydrogeological, geochemical, biosphere impact and long-term assessment as well as an assessment of the operational phase and the impact of all the surface facilities are implemented by Decree No. 104/1988, Annex No. 12.

### 1.3.3 *Site visits*

The site visits have been realised in close cooperation with the Czech Ministry of Environment. The Ministry proposed to visit the non-hazardous landfill A.S.A. Prague Ďáblice and the hazardous landfill site of Nemcice nad Hanou operated by Sita. For the site visit in Prague a representative of the Ministry of Environment was present.

#### 1.3.3.1 *Site visit to representative non-hazardous waste landfill with high organic biodegradable matter content.(A.S.A. Prague Ďáblice landfill class B)*

##### General terms



**Figure 1.3-1: Overview of the non-hazardous landfill A.S.A. (Czech Republic)**

The landfill in Ďáblice is operated by **Abfall Service AG** (Waste service plc), ASA which belongs to the Spanish construction and services group FCC Group (Fromento do Construciones y Contratas, S.A.).

It is a landfill for household and commercial waste, with separate S-003 and S-001 disposal sites. The landfill consists of two stages. The first stage was set into operation between 1993 and 2002. It consists of 16 sectors with a landfill area of ~15 ha and a volume capacity of 1.7 million m<sup>3</sup>. The second stage was set into operation in 2002 containing nine sectors with a landfill area of about 9 ha and a volume capacity of 1.8 million m<sup>3</sup>. In the last years approximately 304,000 t of waste are disposed every year. In case there is no further expansion of the landfill site (negotiation with the neighbouring municipality is ongoing) there are two future scenarios:

1. If the nearby incineration plant will not increase its capacity, the landfill will be filled in approximately one and a half year.

2. If the nearby incineration plant will increase its capacity (which is in the planning phase in the moment) the landfill will keep operating for the following 2.5 years.

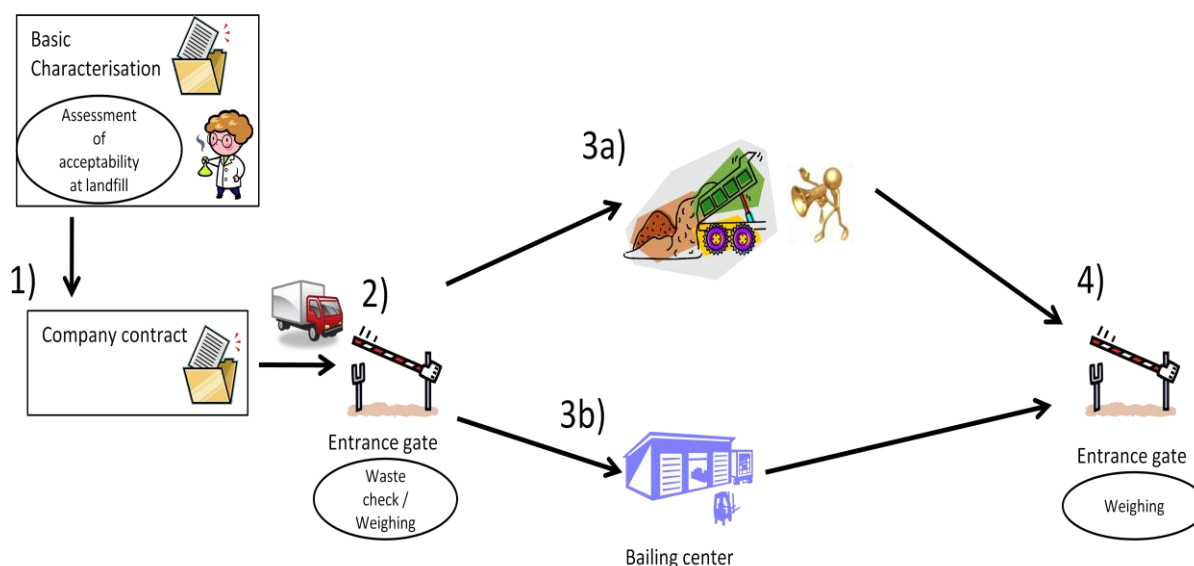
The waste which is disposed of at the landfill site consists of 50-60 % of household waste, which is either collected by A.S.A. itself or from the municipalities.

35 to 38 % of the waste is form two C&D waste collection companies and some other industries.

The remaining waste disposed of at the landfill is from small commercial entrepreneurs (e.g. hairdressers).

The landfill site is equipped with a surface water basin, a leachate waste treatment plant, a landfill gas collection system with a torch as a backup system and a bailing station for paper and plastic. The collected landfill gas is passed to an externally operated energy recovery system. About 1,600 m<sup>3</sup>/h of landfill gas, with a load of about 40 % methane, is produced at the landfill site. The separately collected paper and plastic material is visually checked and impurities are removed. After the bailing station this material is sold for reuse.

### Waste acceptance procedure



**Figure 1.3-2: Flow chart of the waste acceptance procedure at Ďáblice (Czech Republic)**

The process flow of waste acceptance at Ďáblice is the following:

1. 90 % of the incoming waste is announced and the landfill operator holds a document including the waste description before its arrival. For the rest of the delivered waste this document has to be filled in at the arrival of the waste.
2. At the weighing bridge the lorry driver gives over a short description of the above mentioned document to the weighing bridge operator. With the vehicle registration number and the short waste description document the waste is identified and the weighing bridge operator is automatically informed by the computer system if the waste can be accepted.

In the following the weight is measured. In case of their own lorries, the lorry weight is known and only the incoming gross weight has to be measured.

A visual control for lorries which are open on the top is possible with a CCTV.

3. Depending on the waste the lorry drives to landfill site or the bailing centre.
  - A) At the bailing centre the waste is visually checked and impurities are removed. The bailed material is stored and sold for further reuse.
  - B) At the landfill site the disposal of the waste is visually checked. The employees are equipped with a radio and call for dispatch in case of suspicion. On windy days the waste is disposed on wind protected areas on the landfill. In this case the waste is internally transported to the final destination with an immediate compaction or covering to avoid that waste is blown off the landfill site.
4. After disposal the lorry drives back to the weighing bridge. At the exit of the landfill site Lorries, which are not belonging to A.S.A are weighted a second time. Three copies of a weighing bridge document are printed out. One copy is for the landfill archive, a second is used by the landfill operator for the invoice and the third copy is given to the driver and is for the former waste owner.

The information on the computer system is kept without time limit.

#### Basic characterisation

Household wastes which are sent to the landfill site do not need a basic characterisation.

In case of industrial waste a representative of the landfill site is send to the company, who is in charge to define which type of waste can be accepted on which types of landfill. To determine if the waste can be accepted a document is prepared. In case chemical analyses have to be done an external laboratory is consulted. This document has to be renewed every year and also in case the process of the waste origin changes. Based on this a contract with the company is developed.

#### Compliance testing

For waste which has to be tested Compliance testing is done about 1-2 times a year, depending on the composition. Waste types which have already exceeded the limit values once are taken a closer look at.

#### On-site verification

At the weighing bridge the waste is visually checked by CCTV cameras. At the landfill face another visual check is performed by special staff and the compactor drivers.

#### Expert proposals related to potential modifications of the WAC

There are no proposals for the WAC Decision.

### 1.3.3.2 Site visit to representative non-hazardous waste and hazardous waste landfill (class B and C) in Němčice nad Hanou

#### General terms

The landfill site of Němčice nad Hanou is located about 50 km northeast from Brno. The landfill is owned and managed by SITA CZ A.S. which operates – besides 17 other European countries – landfills for all types of waste in the Czech Republic since 2000. Furthermore, Suez environment, a subsidiary of SITA CZ operating non-hazardous and hazardous wastes sites, manages the site. The landfill belongs geographically to the South division of SITA CZ.

The landfill started operation in 1995 and was constructed in stages. Today the landfill comprises two main stages (fields 1-7: 505,000m<sup>3</sup> and fields 8-19: 1,302,000m<sup>3</sup>) with a total capacity of 1,807,000m<sup>3</sup>. Thereof the remaining capacity is 1,150,000m<sup>3</sup>.

At the landfill non-hazardous waste (S-OO) – mainly municipal waste – and hazardous waste ((S-NO) stable, non-reactive hazardous waste) are landfilled in the site.

The active installation comprises a small chemical laboratory for internal use (for internal treatment analysis), a stabilisation plant and a biodegradation plant where contaminated soil is biologically treated and recovered. Furthermore, the landfill is equipped with a vast storage area for refrigerators which are collected by an external company and then transported to specialised recycling and recovery facilities. The storage area also serves for treated waste which has to be monitored and repeatedly checked.

About 90% of the waste is non-hazardous waste and the rest hazardous waste which undergoes one of the two treatments if applicable. Also the non-hazardous waste may be treated in order to comply with the indicated leaching limit values. In total ca. 60% of the accepted waste is municipal waste from about 100,000 inhabitants of the region which is separately collected and in general directly landfilled. This waste is mainly transported by own lorries.

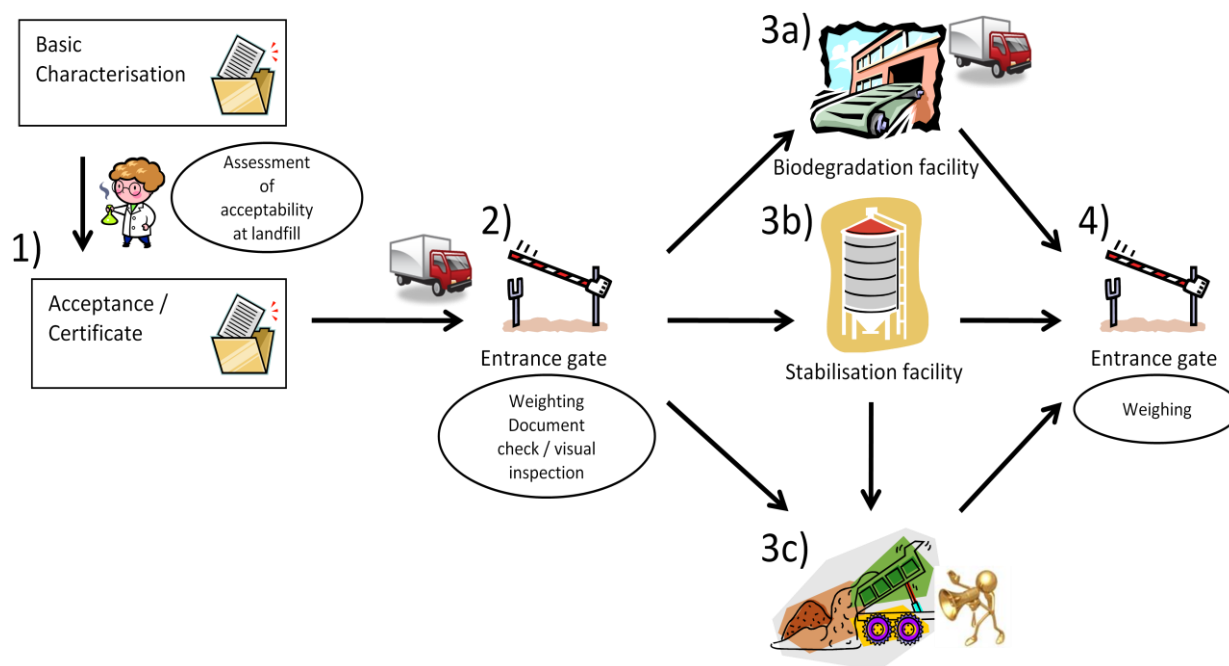
There is no interim waste product that leaves after treatment the landfill. All accepted waste is landfilled except the collected fridge bodies which are only stored for a limited time until 10,000 fridges are collected and can then be treated by a mobile equipment. Latter is rented for a short time.

Němčice nad Hanou has about 300 different clients. Non-hazardous waste is delivered by regional clients while hazardous wastes are received from clients throughout the whole country. The landfilled non-hazardous waste comprises municipal waste, uncontaminated C&D-waste, commercial and industrial waste, uncontaminated soil and foundry sand whereas the hazardous waste mainly consists of C&D waste, contaminated soils, sludges contaminated with heavy metal, fly-ash from hazardous waste incineration as well as contaminated packaging. In addition asbestos waste is accepted.

Precipitation water is discharged into the environment after control.

Regular ground water, surface water and infiltration water monitoring is performed on-site.

### Waste acceptance procedure



**Figure 1.3-3: Flow chart of the waste acceptance procedure at Nemčice nad Hanou (Czech Republic)**

The landfill is equipped with an electronic waste information management system where all client related data are registered.

The waste acceptance process flow at NĚmčice nad Hanou is as follows:

1. Once a waste is deemed acceptable at the landfill based on the information in the basic characterisation form (“Základní popis odpadu”) and the results of the initial chemical analysis and the sample provided by the waste producer, latter is informed by means of a standardised “Acceptance certificate” (“Předávací list odpadu”) that the announced waste can be delivered to the landfill site. This form has to be shown when entering the landfill/weighting bridge and includes among others, waste producer name and address, waste type/category, its amount and the signature of the landfill operator. Representative samples are only taken by an external laboratory.
2. Transporters are identified via the acceptance document and the indicated information when they enter the landfill site at the weighing bridge. After having identified the corresponding file in the computer system and transferred the weight, the driver receives a signal to enter the landfill site. In the electronic data base is additionally registered how the waste has to be treated. No swipe card is used to enter the landfill.
3. After measuring the weight and a first visual inspection which is performed when the lorries are not closed on the top, the driver is precisely instructed how to proceed on the landfill. There are the following possibilities to proceed directly to the unloading area at the landfill, to the stabilisation treatment facility, to the biodegradation facility or to the storage area for fridges.
4. The he waste it is brought to one of the following destinations:

a) The waste is directly landfilled. Non-hazardous and stable, non-reactive hazardous waste is landfilled in the same cell. Compliantly packaged asbestos waste is accepted at the landfill and disposed of in a separated cell and daily covered. Disposal is documented regularly in a topographic register.

b) The waste is transferred to the stabilisation plant which mainly consists of a facility to mix different waste types in order to comply with required leaching limit values.

c) The waste is transferred to the biodegradation facility where the waste is treated by bacteria.

The unloading for treatment or at the landfill field itself is supervised by an employee, who calls for support and decision in case any suspicious load is observed. The whole personnel are equipped with radio equipment.

5. After final weighing the driver obtains a confirmation of receipt on the “Vážní lístek” before leaving the landfill site.

Information about waste type, quantity, delivery date and waste treatment is recorded on paper and in electronic format for the operational period and a 30 years aftercare period.

#### Basic characterisation

Acceptance of waste is exclusively on the basis of a basic characterisation/compliance testing including chemical analysis (information data sheet). Only very rarely and only if the waste producer/client is known such a form can be filled in at the landfill itself for non-hazardous waste.

The basic characterisation has to be renewed every year.

The only waste accepted without chemical analysis is asbestos waste, which is delivered in big packs and is landfilled in separated cells.

Every treated waste from stabilisation or biodegradation undergoes a second/new basic characterisation to prove that all criteria are compliant. In case the limit values are still too high, the treatment is repeated to achieve the required results.

The waste category will not be changed after treatment.

#### Compliance testing

Compliance testing corresponds to the annual renewal of the basic characterisation including the full list of chemical analyses.

#### On-site verification

On-site verification consists of a visual inspection at the point of entry if the lorry is not closed on the top and during the unloading. Twice a year the waste is checked and several spot checks are made when the electronic system indicates this by an automatic alert.

Stabilised waste is furthermore subject to a leaching test after some days of maturation, in order to check whether it can be landfilled.



### Expert proposals related to potential modifications of the WAC

- WAC limit values for DOC are sometimes difficult to meet after biological treatment. Therefore, the landfill operator often has to ask for a specific permission for higher limit values (only for DOC) from the national authorities is necessary. It would be good to have a specific exemption for DOC after treatment in order to reduce bureaucracy burdens.
- Harmonisation of acceptance criteria for stabilised solidified hazardous waste into waste is requested as regards amendments to section 2.3 -2.4 – 3 of the Landfill Directive.

#### 1.3.3.3 Site visit to representative non-hazardous waste and hazardous waste landfill (class B and C) in Němčice nad Hanou

##### General terms

The landfill site of Němčice nad Hanou is located about 50km northeast from Brno. The landfill is owned and managed by SITA CZ A.S. which operates 6 landfills in the Czech Republic. The sites are certified by ISO 9001, ISO 14001 and OHSAS 18001. SITA CZ A.S., a subsidiary of Suez environment, operating non-hazardous and hazardous wastes sites, manages the site. The landfill belongs geographically to the South division of SITA CZ.

The landfill started operation in 1996 and was constructed in stages. Today the landfill comprises two main stages (fields 1-7: 505,000m<sup>3</sup> and fields 8-19: 1,302,000m<sup>3</sup>) with a total capacity of 1,807,000m<sup>3</sup>. Thereof the remaining capacity is 1,150,000m<sup>3</sup>.

At the landfill non-hazardous waste (S-OO) – mainly municipal waste – and hazardous waste ((S-NO) stable, non-reactive hazardous waste) are landfilled in the site.

The site covers an area of 3.7 ha. The envisaged remaining exploitation time is 23 years. The active installation comprises a small chemical laboratory for internal use (for internal treatment analysis), a stabilisation plant and a biodegradation plant where contaminated soil is biologically treated and recovered. Furthermore, the landfill is equipped with a vast storage area for fridges which are collected by an external company and then transported to specialised recycling and recovery facilities. The storage area also serves for treated waste which has to be monitored and repeatedly checked.

The permitted annual maximum tonnage is without limit. About 90% of the waste is non-hazardous waste and the rest hazardous waste which undergoes one of the two treatments if applicable. Also the non-hazardous waste may be treated in order to comply with the indicated leaching limit values. In total ca. 60% of the accepted waste is municipal waste from about 100,000 inhabitants of the region which is separately collected and in general directly landfilled. This waste is mainly transported by own lorries.

There is no interim waste product that leaves the landfill after treatment. All accepted waste is landfilled except the collected fridge bodies which are only stored for a limited time until 10,000 fridges are collected and can then be treated by a mobile equipment. Latter is rented for a short time.

Němčice nad Hanou has about 300 different clients. Non-hazardous waste is delivered by regional clients while hazardous water is received from clients throughout the whole country. The landfilled non-hazardous waste comprises municipal waste, uncontaminated C&D-waste, commercial and industrial waste,

uncontaminated soil and foundry sand whereas the hazardous waste mainly consists of C&D waste, contaminated soils, sludges contaminated with heavy metal, fly-ash from hazardous waste incineration as well as contaminated packaging. In addition asbestos waste is accepted.

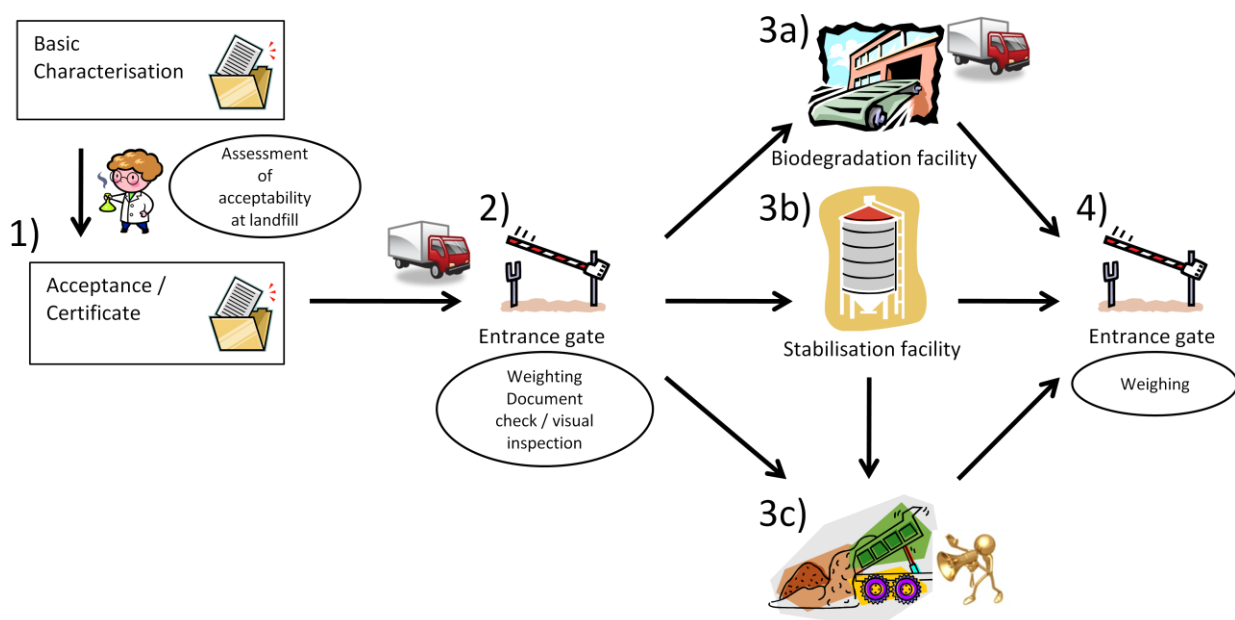
Furthermore, the site is equipped with a gas collection system (active degassing system) with an average output of 270kW. The landfill produces green energy (municipal electrical power).

The leachate water and run-off water is monitored and recycled in a specific facility or conducted to an external facility.

Precipitation water is discharged into the environment after control.

Regular ground water, surface water and infiltration water monitoring is performed on-site.

### Waste acceptance procedure



**Figure 1.3-4: Flow chart of the waste acceptance procedure at Nemcice nad Hanou (Czech Republic)**

The landfill is equipped with an electronic waste information management system where all clients' related data are registered.

The waste acceptance process flow at Němčice nad Hanou is as follows:

1. Once a waste is deemed acceptable at the landfill based on the information in the basic characterisation form ("Základní popis odpadu") and the results of the initial chemical analysis and the sample provided by the waste producer, latter is informed by means of a standardised "Acceptance certificate" ("Předávací list odpadu") that the announced waste can be delivered to the landfill site. This form has to be shown when entering the landfill/weighting bridge and includes among others, waste producer name and address, waste type/category, its amount and the signature of the landfill operator. Representative samples are only taken by an external laboratory.

2. Transporters are identified via the acceptance document and the indicated information when they enter the landfill site at the weighing bridge. After having identified the corresponding file in the computer system and transferred the weight, the driver receives a signal to enter the landfill site. In the electronic data base it is additionally registered how the waste has to be treated.
3. After measuring the weight and a first visual inspection which is performed if the lorries are not closed on the top, the driver is precisely instructed how to proceed on the landfill. There are the following possibilities to proceed a) to the biodegradation facility, b) to the stabilisation treatment facility or c) directly to the unloading area at the landfill. It is also possible that the lorries are only carrying fridge bodies which are brought to the storage area.
4. The waste is brought to one of the following destinations:
  - a) The waste is transferred to the biodegradation facility where the waste is treated by bacteria.
  - b) The waste is transferred to the stabilisation facility which mainly consists of a facility to mix different waste types in order to comply with required leaching limit values.
  - c) The waste is directly landfilled. Non-hazardous and stable, non-reactive hazardous waste is landfilled in the same cell. Compliantly packaged asbestos waste is accepted at the landfill and disposed of in a separated cell and daily covered. Disposal is documented regularly in a topographic register.

The unloading for treatment or at the landfill field itself is supervised by an employee, who calls for support and decision in case any suspicious load is observed. The whole personnel are equipped with radio equipment.

After final weighing the driver obtains a confirmation of receipt on the "Vážní lístek" before leaving the landfill site.

Information about waste type, quantity, delivery date and waste treatment is recorded on paper and in electronic format for the operational period and a 30 years aftercare period.

#### Basic characterisation

Acceptance of waste is exclusively on the basis of a basic characterisation/compliance testing including chemical analysis (information data sheet). Only very rarely and only if the waste producer/client is known such a form can be filled in at the landfill itself for non-hazardous waste.

The basic characterisation has to be renewed every year.

The only waste accepted without chemical analysis is asbestos waste, which is delivered in Big Bags and is landfilled in separated cells.

Every treated waste from stabilisation or biodegradation undergoes a second/new basic characterisation to prove that all criteria are compliant. In case the limit values are still too high, the treatment is repeated to achieve the required results.

The waste category will not be changed after treatment.

### Compliance testing

Compliance testing corresponds to the annual renewal of the basic characterisation including the full list of chemical analyses.

### On-site verification

On-site verification consists of a visual inspection at the point of entry if the lorry is not closed on the top and during the unloading. Twice a year the waste is checked and several spot checks are made when the electronically system indicates this by an automatic alert.

Stabilised waste is furthermore subject to a leaching test after some days of maturation, in order to check whether it can be landfilled.

### Expert proposals related to potential modifications of the WAC

- WAC limit values for DOC are sometimes difficult to meet after biological treatment. Therefore, often the landfill operator has to ask for a specific permission for higher limit values (only for DOC) by the national authorities. It would be advantageous to have a specific exemption for DOC after biological treatment in order to reduce bureaucracy burdens.
- Harmonisation of acceptance criteria for stabilised solidified hazardous waste into waste is requested as regards amendments to section 2.3 -2.4 – 3 of the Landfill Directive

## 1.4 Country Report Estonia

The WAC Decision is implemented by Estonian legislation by Regulation No. 38 of 29 April 2004. However, the transposition of the WAC Decision requirements is mainly realised by a reference to Decision 2003/33/EC in § 18 of the mentioned Regulation. This only includes a general reference to the WAC Decision concerning the waste acceptance itself.

The consequence of this direct implementation into the national legislation is that landfill operators are not well informed about the correct acceptance of waste. For this purpose a Guideline “Prügilasse jäätmete vastuvõtmise kriteeriumid ja kord” was prepared. This Guideline can be downloaded at:

<http://www.envir.ee/orb.aw/class=file/action=preview/id=1126730/Pr%FCgilasse+j%E4%E4tmete+vastuv%F6tmise+kriteeriumid+ja+kord.pdf>

Criteria which the Member States are required to set, have hardly been implemented. Also special precautions as e.g. for gypsum waste not to be co-disposed with biodegradable waste, are not set.

### 1.4.1 *Legal assessment*

Table 1.4-1 provides an overview on the legal documents transposing the WAC Decision requirements into national legislation. Furthermore the table shows a qualitative assessment of the level of implementation or possible divergences which are further explained and justified in the following sections.

Estonia			
Category	Corresponding national legislation	Implementation	Comments
1. Procedure		~	
1.1 Basic Characterisation		~	
1.1.1 Function	Landfill Regulation 2004 § 18, 24 and 25	~	For the acceptance of waste it is referred to the WAC Decision but the function of basic characterisation is not explicitly implemented.
1.1.2 Fundamental requirements	Landfill Regulation 2004 § 18-23 and 24	~	For the acceptance of waste it is referred to the WAC Decision but the fundamental requirements of basic characterisation is not explicitly implemented.
1.1.3 Testing	Landfill Regulation 2004 § 18, 24 and 25	~	For the acceptance of waste it is referred to the WAC Decision but testing is not explicitly implemented.
1.1.4. Cases where testing is not required	Landfill Regulation 2004 § 24	~	For the acceptance of waste it is referred to the WAC Decision but cases where testing is not required is not explicitly implemented.
1.2 Compliance Testing	Landfill Regulation 2004 § 24	~	Some requirements for compliance testing are not implemented. Only the need for compliance testing is set.
1.3 On-site verification	Landfill Regulation 2004 § 18, 24 and 25	✓	
2. Acceptance Criteria	Landfill Regulation 2004 § 18	✓	
2.1 Landfills for inert waste		✓	
2.1.1 Short list	Landfill Regulation 2004 § 18 and 20, and Waste Act 2004 § 4	✓	
2.1.2 Limit values		✓	
2.1.2.1 Leaching limit values	Landfill Regulation 2004 § 18	✓	
2.1.2.2 Limit values for total content of organic parameters	Landfill Regulation 2004 § 18	~	No PAH limit value is set.

Estonia			
Category	Corresponding national legislation	Implementation	Comments
2.2 Landfills for non-hazardous waste		~	
2.2.1 Without testing	Landfill Regulation 2004 § 18 and 21, and Waste Act 2004 § 126, 129 and 132	✓	
2.2.2 Limit values for non-hazardous waste	Landfill Regulation 2004 § 18 and 21	~	Criteria for monolithic waste are not implemented.
2.2.3 Gypsum waste	Landfill Regulation 2004 § 18	—	Special provisions for co-disposal of gypsum waste are not implemented.
2.3 Criteria for hazardous waste acceptable at landfills for non-hazardous waste, Art 6 c iii		~	
2.3.1 Leaching limit values	Landfill Regulation 2004 § 18	~	Criteria for monolithic waste are not implemented
2.3.2 Other criteria	Landfill Regulation 2004 § 18 and 26-27	~	Criteria for monolithic waste are not implemented
2.3.3 Asbestos waste	Asbestos Waste Regulation 2004 §10	✓	
2.4. Landfills for hazardous waste			
2.4.1 Leaching limit values	Landfill Regulation 2004 § 18 and 22	✓	
2.4.2 Other criteria	Landfill Regulation 2004 § 18	~	Criteria for monolithic waste are not implemented
2.5 Criteria for underground storage	Landfill Regulation 2004 § 18 and Waste Act 2004 § 34	—	Proper disposal in underground storage systems is not implemented.

**Table 1.4-1: Implementation of WAC Decision requirements in Estonian Legislation**

#### 1.4.1.1 *Legal framework*

The WAC Decision is implemented in Estonian legislation by:

- Landfill Regulation of 29<sup>th</sup> April 2004 (hereinafter referred to as Regulation 2004) with amendments
- Waste Act of 1<sup>st</sup> May 2004 (hereinafter referred to as Waste Act 2004) with amendments and
- Asbestos containing waste handling requirements of 21<sup>st</sup> April 2004 (hereinafter referred to as Asbestos Waste Regulation 2004) with amendments

The consolidated legislations can be downloaded at:

<http://www.envir.ee/1002>

Different researches concerning waste and its disposal can be downloaded at:

<http://www.envir.ee/1001>

The new guideline for the correct interpretation of Estonian legislation can be downloaded:

<http://www.envir.ee/orb.aw/class=file/action=preview/id=1126730/Pr%FCgilasse+j%E4%E4tmete+vastuv%F6tmise+kriteeriumid+ja+kord.pdf>

The set landfill categories are the same as in the WAC Decision. No sub-categories are defined.

#### 1.4.1.2 *Acceptance Procedure*

##### *Basic Characterisation*

The basic characterisation is implemented by Estonian legislation by § 18 of the Landfill Regulation 2004. In this paragraph it is stated that the acceptance of waste has to be performed as described in the WAC Decision. Furthermore, in § 18<sup>1</sup> the description of basic characterisation from the three level hierarchy of Section 3 of Annex II to the Landfill Directive has nearly been literally transposed.

§ 24 (3) and (4) a notification form is described which has to include the following information:

- Waste acceptance date and time
- Consignment note or airway bill number of waste shipment from hazardous waste
- EWC code and name
- Amount of waste (kg or tons)
- Information of the waste carrier (company name, address and registry), registry, self-employed person or a natural person's name and place of residence
- Transport number



- Natural person's name who delivers the waste
- Landfill operator information (name address and registry)
- Person who issued the document, name position and signature.

Two notification copies have to be made. One copy is for the waste deliverer and the second for the landfill operator and corresponding business person. This notification has to be kept for three years.

A further record keeping for a basic characterisation is not implemented.

Wastes which cannot be accepted at a landfill are defined in § 18 (2) – (4) of the Landfill Regulation 2004 including that no other regulation is in contradiction with the acceptance and in § 19 of the Landfill Regulation 2004. According to this regulation the following wastes are listed as unacceptable:

- Liquids
- Explosive, oxidising, highly flammable, corrosive, or flammable waste
- Health and veterinary infectious waste
- Waste whose effect on health or the environment are not known
- Waste whose composition and origin is unknown, except those waste whose leaching behaviour has been determined in a accredited laboratory
- Waste which cannot be checked
- Waste with an EWC code which is not in the permit of the corresponding landfill

§ 24 (7) of the Landfill Regulation 2004 states that the landfill operator shall refuse the waste acceptance and inform the Environmental Inspectorate, including information listed in § 24 (8) of the Landfill Regulation 2004 if, in his opinion, the waste is not in compliance with the basic characterisation.

Though, it is stated that the acceptance of waste has to comply with the WAC Decision, this does not implement the proper use and preparation of the basic characterisation including the function of basic characterisation, fundamental requirements of the basic characterisation, testing or the cases where testing is not required.

#### Compliance testing

As described for the basic characterisation, the requirements for compliance testing are implemented by §18 of the Landfill Regulation 2004. This only includes a general reference to the WAC Decision concerning the waste acceptance itself. Level 2, Section 3 of the Annex II to the Landfill Directive is nearly literally implemented by § 18<sup>1</sup> of the regulation.

According to § 24 (1) of the Landfill Regulation 2004, the landfill operator has to verify that the waste complies with § 18 of the same regulation.

In case of suspicion, waste samples shall be taken according to § 24 (5) of the Regulation 2004 to control if the waste is in compliance according to the reference made in § 25 (1) to (4) of the Regulation 2004. Sampling and analysing of the waste shall be done by the waste owner after request of the landfill operator. Samples shall be kept at the laboratory for at least one month. Test results shall be stored for at least three years.

Though, it is stated that the acceptance of waste has to comply with the WAC Decision, this does not implement the proper use and preparation of the compliance testing. It is not implemented that relevant parameters for compliance testing have to be determined in the basic characterisation. Further, it is not stipulated that the test for compliance testing has to be one or more of the basic characterisation and shall at least consist of a batch leaching test. The provision that compliance testing has to be performed at least once a year and the frequency of measurements, which shall be determined in the basic characterisation, is not transferred into Estonian legislation.

#### On-site verification

As described for the basic characterisation, the requirements for on-site verification are implemented by §18 of the Landfill Regulation 2004. This only includes a general reference to the WAC Decision concerning the waste acceptance itself. Level 3, Section 3 of the Annex II to the Landfill Directive is nearly literally implemented by § 18<sup>1</sup> of the Regulation 2004.

However, it is not stipulated that on-site verification can merely consist of a visual inspection of a load of waste before and after unloading. Latter is implemented by § 24 (2) of the Landfill Regulation 2004, stating that at the weighing bridge and at the place of unloading a visual check and a check of the documents shall be made. As for compliance testing § 25 (4) is also applicable for on-site verification including that samples shall be kept by the laboratory for at least one month and the test results at least for three years.

#### 1.4.1.3 *Waste Acceptance Criteria*

According to § 24 and § 25(3) of the Landfill Regulation 2004, the landfill operator may require an evaluation of the waste composition and analyses made by accredited laboratories in case the waste composition is unclear.

Higher limit values are not directly included in Estonian legislation. However § 18 of the Landfill Regulation 2004 implements, that the acceptance of waste has to be in accordance to the WAC Decision. The higher limit values are therefore indirectly applicable.

Except for the physical stability and the bearing capacity no additional criteria to be set by national authorities have been defined by Estonian legislation.

#### Criteria for waste acceptable at landfills for inert waste

In § 20 of the Landfill Regulation 2004 it is stated that only inert waste shall be disposed of at landfills for inert waste. All other requirements are transposed into national legislation by § 18 of Landfill Regulation 2004. Thereafter waste shall only be accepted if this is in accordance with the WAC Decision.

A PAH limit value is not set.

Criteria for non-hazardous waste acceptable at landfills for non-hazardous waste

According to § 21 of the Landfill Regulation 2004 mixed municipal waste and non-hazardous waste of other origins can be accepted at landfills for non-hazardous waste.

§126 of the Landfill Regulation 2004 states that waste has to be pre-treated before it is disposed of at a landfill. This also includes mixed municipal waste which has to be sorted.

All other requirements are implemented by § 18 of the Landfill Regulation 2004 indicating that waste shall only be accepted if this is in accordance with the WAC Decision. Special caution for the co-disposal of gypsum waste is not implemented.

Criteria for hazardous waste acceptable at landfills for non-hazardous waste

According to § 21 of the Landfill Regulation 2004 hazardous waste which is in compliance with the WAC Decision can be accepted at landfills for non-hazardous waste provided that the waste is landfilled in a separate cell and is not mixed with biodegradable waste.

According to § 26 of the Landfill Regulation 2004 the physical stability of the landfill site has to be maintained. This includes that the waste does not volatilise and that the waste is compacted to a density of at least 900 kg/m<sup>3</sup>.

All other requirements are implemented by § 18 of the Landfill Regulation 2004 indicating that waste shall only be accepted if this is in accordance with the acceptance of waste as stipulated in the WAC Decision.

The proper disposal of asbestos waste is implemented by the Asbestos Waste Regulation 2004.

§ 10 (1) and (2) of the Asbestos Waste Regulation 2004 states that asbestos waste shall only be accepted at a landfill for non-hazardous waste or hazardous waste if this is in compliance with the WAC Decision.

Criteria for waste acceptable at landfills for hazardous waste

In § 22 of the Landfill Regulation 2004 it is stated that hazardous waste must meet the requirements as laid down in the WAC Decision. All other requirements are transposed into national legislation by § 18 of the Landfill Regulation 2004 indicating that waste shall only be accepted if this is in accordance with the acceptance of waste as stipulated in the WAC Decision.

Underground storage

A definition of landfilling which includes the disposal of waste in underground storage sites is included in § 34 of the Waste Act 2004. However, no further specifications are given.

## 1.4.2 Site visit

The organisation of the site visit has been realised in close cooperation with the Ministry of Environment of Estonia which organised the visit to the landfill site Paikre (non-hazardous waste landfill).

### 1.4.2.1 Site visit to representative non-hazardous waste landfill (Paikre, landfill class B)

#### General terms



Figure 1.4-1: Overview of Landfill site Paikre (Estonia)

The construction of the landfill site of Paikre started in 2004. The owner is the local government. 63 % of the costs have been paid by the European Union ISPA fund, 12 % by Paikuse Jäätmekaitluskeskus and 25 % by the Republic of Estonia. In 2006 the landfill site started operation.

Paikre has two landfill sites. Since 2008 waste is collected from about 1/3 of the Estonian countryside within a distance of about 150 km. This represents about 12 % of the country's population, which are about 170,000 people. An old landfill site closely with a size of 18.6 ha has already been closed. This old landfill site will be equipped in July 2010 with a landfill gas recovery system which will be used for energy production. Next to the site is a sorting facility which will continue operation. At the sorting facility about 10 to 15 tonnes of waste are delivered daily with peaks of 20 tonnes per day. About 2-3 % of the sorted waste has to be disposed at the new landfill site. The separated wastes are paper, plastic and packaging materials as metal and glass. The new landfill site is located at a different location and consists of a storage area for hazardous waste, a storage area for separated waste, a sorting place for tires, a composting area as well as the disposal site. The landfill site covers a total area of 41.2 ha, of which about 5.1 ha are used for disposal. It was planned that the capacity is about 300,000 tonnes of waste. After a new calculation it is recognised that this landfill site will be able to bear about 600,000 tonnes of waste. During 2004 and 2009 about 120,000 tonnes of waste have been landfilled. Due to an incineration plant which is planned close to Tallinn and which will start operating by the end of 2012, a corresponding reduction of waste to be

landfilled is expected. The annually landfilled waste will be less than 28,000 tonnes of waste and therefore the capacity of the disposal site will cover at least the following 17 years. After this time it will be possible to establish a second as well as third disposal site of a similar size as the first one.

The existing disposal site also contains separated cells for asbestos waste.

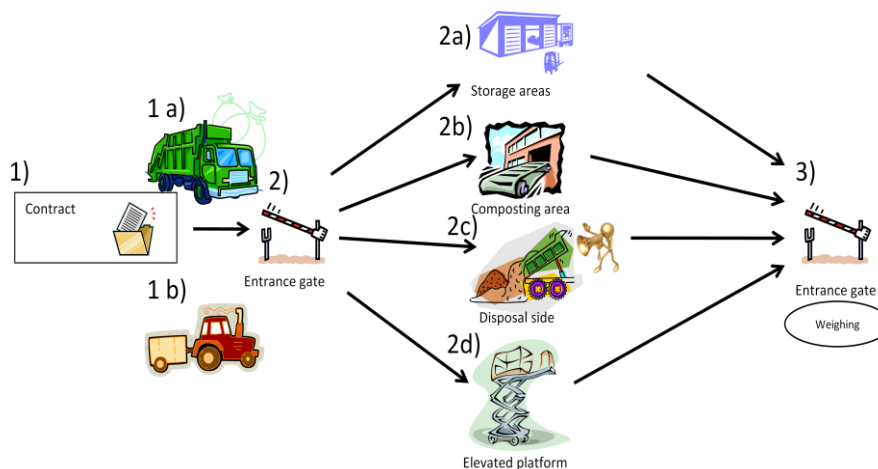
The landfill site is equipped with a drainage system and the water is pumped 6 km to the municipal water grid system from where it is further transported to a wastewater treatment plant which is located about 20 km from the landfill site.

It is planned that on the 23 June 2010 a flaring torch, to burn the produced landfill gas, will start operation. The collected landfill gas is not sufficient to be used for power generation.

About 10 – 20 % of the costumers of Paikre are private persons. The rest of the waste is delivered from companies which have a contract with the landfill site.

Typical wastes which are brought to the landfill site are household wastes, construction waste, gardening waste and hazardous waste.

#### Waste acceptance procedure



**Figure 1.4-2: Flow chart of the waste acceptance procedure at Paikre (Estonia)**

After a company has proclaimed their wish to dispose their waste at Paikre, it is checked if this company is officially registered. After this proof a contract is signed with the corresponding companies. The waste acceptance procedure at the landfill site is the following:

1. Waste arriving at the weighing bridge can be processed in two ways:
  - a) The waste is transported by a company under contract. A visual control is performed in case the lorry is not closed to all sides. A weighing bridge document is filled in, including information as vehicle registration number, waste type, waste producer, waste transporter and the weight.

- b) The waste is brought by a private person. A visual control is performed whenever possible and a weighing bridge document is filled in, including the same information as the notification document for companies under contract and additional the ID data of the incoming person.
2. After the weighing the weighing operator instructs the driver where to go. This can be:
    - a) The corresponding storage sides for hazardous waste (as WEEE or hazardous waste), tires, separated wastes,
    - b) Composting area for gardening waste,
    - c) Disposal side for household waste, construction waste and other wastes for landfilling,
    - d) In case of suspicion, the transporter is send to an inspection area which consists of elevated platforms to inspect the waste.
  3. After unloading of the waste the lorry drives back to the weighing bridge for a second weighing to determine of the net weight.

A weighing document is given to the driver. The information is also included in the computer and is used for issue the invoice. All information is stored in the computer system without time limit.

#### Basic characterisation

No basic characterisation is performed. From the annually disposed 28,000 tonnes, about 23,000 tonnes are municipal solid waste and 300 tonnes are asbestos waste. For the final 4,700 tonnes of non-hazardous waste which would require a basic characterisation no basic characterisation is performed. The reason is, that the WAC Decision is mainly implemented by § 18 of the Regulation 2004 which states that acceptance of waste shall be done in accordance with the WAC Decision and therefore the impact is not clear to all landfill operators. The ministry of Estonia has recognised this lack and has prepared a waste acceptance guideline which was published in the beginning of 2010. This Guideline is explained in detail in the legal assessment of the country report of Estonia.

#### Compliance testing

No compliance testing is performed for the disposed non-hazardous waste due to the reasons explained in the above part of basic characterisation.

In some projects a Sustainable Development Institute has been hired to analyse the waste on the landfill site. The focus of this analysis has been mainly to determine the composition of the waste concerning the different waste types on the landfill cell itself.

#### On-site verification

At the weighing bridge the waste is visually checked. In case of suspicion it is send to an inspection area. In case the suspicion further consists the landfill operator is informed and pictures are taken. On a case to

case base it is decided how to proceed. For small divergences and primary delicts the companies are admonished. In case of larger amounts of wrong waste types, fees have to be paid. For this purpose a report is prepared including the taken pictures.

At the place of disposal a further visual check is done by the operator of the digger or compactor. Larger wood pieces are taken out of the landfill site and brought to the composting side where they will be shredded and prepared for composting.

*Expert proposals related to potential modifications of the WAC*

There are no proposals for the WAC Decision.

## 1.5 Country Report Hungary

The WAC Decision requirements are well implemented by Hungarian legislation. However, some divergences could be identified as listed below.

- Fundamental requirements Point k) (check if the waste can be recycled or recovered) is only partially implemented;
- With regard to the Short list the footnote (\*) addressing C&D waste is only partially transposed. Further, it is not set that waste may be accepted without testing if it is a single stream (one source) of a single type and that different wastes may be accepted together provided they are from the same source;
- No criteria for physical stability and bearing capacity are set for hazardous waste acceptable at non-hazardous waste landfills;
- Some waste types indicated in the EWC list can be accepted without testing except 200141 which is an additional provision;
- Additional provisions for the measurement of ANC are set;
- Ban of underground storage.



### 1.5.1 Legal assessment

Table 1.5-1 provides an overview on the legal documents transposing the WAC Decision requirements into national legislation. Furthermore, the table shows a qualitative assessment of the level of implementation or possible divergences which are further explained and justified in the following sections.

Hungary			
Category	Corresponding national legislation	Implementation	Comments
1. Procedure		~	
1.1 Basic Characterisation	Section 1, Annex 2, Decree 20/2006	~	
1.1.1 Function	§12; Section 1, Annex 2, Decree 20/2006; §6, Decree No 164/2003	✓	
1.1.2 Fundamental requirements	§5, Point 3; Section 1.1, Annex 2, Decree 20/2006; §19(5); Waste Management Act 2000/43	~	Point k) is partially implemented.
1.1.3 Testing	§10, Section 1.1, Annex II, Decree 20/2006	✓	
1.1.4. Cases where testing is not required	Section 1.1, Annex II, Decree 20/2006; Table 2.1.-1., Section 2.1, Annex II, Decree 20/2006	✓	
1.2 Compliance Testing	Section 1, Annex II, Decree 20/2006; Decree No 164/2003	✓	
1.3 On-site verification	§11; Section 1.3, Annex II, Decree 20/2006	✓	
2. Acceptance Criteria	Section 1.3 and 2.4, Annex II, Decree 20/2006	✓	
2.1 Landfills for inert waste	Section 2.1, Annex II, Decree 20/2006	~	
2.1.1 Short list	§10; Section 2.1 and Table 2.1.-1., Section 2.1., Annex II, Decree 20/2006	~	The footnote (*) is only partially transposed. It is not set that waste may be accepted without testing if it is a single stream (one source) of a single type and that different wastes may be accepted together provided they are from the same source.
2.1.2 Limit values	Table 2.1.-2., Section 2.1.2., Annex II, Decree 20/2006	+	A higher limit value of TOC for soils is not possible
2.1.2.1 Leaching limit values	Table 2.1.-2., Section 2.1.2., Annex II, Decree 20/2006	✓	
2.1.2.2 Limit values for total content of organic parameters	Table 2.1.-3., Section 2.1.2., Annex II, Decree 20/2006	✓	
2.2 Landfills for non-hazardous waste		✓	
2.2.1 Without testing	Section 2.2.3., Annex II, Decree 20/2006	+	Some waste types indicated in the EWC list can be accepted without testing except 200141.

Hungary			
Category	Corresponding national legislation	Implementation	Comments
2.2.2 Limit values for non-hazardous waste	Table 2.2.1.-1., Section 2.2.1., Annex II, Decree 20/2006	✓	
2.2.3 Gypsum waste	Section 2.2.3., Annex II, Decree 20/2006	✓	
2.3 Criteria for hazardous waste acceptable at landfills for non-hazardous waste, Art 6 c iii	Sections 1.1 and 2.2.1, Annex II, Decree 20/2006	~	
2.3.1 Leaching limit values	Section 2.2.1, Annex II, Decree 20/2006	✓	
2.3.2 Other criteria	Table 2.2.1.-2., Annex II, Decree 20/2006	~	Specific criteria for physical stability and bearing capacity for stable, non-reactive hazardous waste are not defined.
2.3.3 Asbestos waste	Section 2.2.2., Annex II, Decree 20/2006	✓	
2.4. Landfills for hazardous waste	Section 2.3., Annex II, Decree 20/2006	✓	
2.4.1 Leaching limit values	Table 2.3.-1., Section 2.3., Annex II, Decree 20/2006	✓	
2.4.2 Other criteria	Table 2.3.-2., Section 2.3., Annex II, Decree 20/2006	✓	Additional provisions for the measurement of ANC are set.
2.5 Criteria for underground storage	Article 3(3)m), Decree 20/2006	+	Ban of underground storage.

**Table 1.5-1: Implementation of WAC Decision requirements in Hungarian legislation**

### 1.5.1.1 *Legal framework*

The WAC Decision has been transposed into Hungarian legislation by:

- Ministerial Decree No. 20/2006 (IV.5.) KvVM on Landfilling and Certain Rules and Conditions of Landfill Activities (hereinafter referred to as Decree 20/2006).

Further, time for record keeping is regulated by:

- Government Decree No 164/2003 (X.18) on the Obligations of Recording and Supplying Data Related to Waste (hereinafter referred to as Decree No 164/2003).

According to Table 2, Point 1.3, Annex 1 to Decree 20/2006 additional subcategories for non-hazardous landfills are defined.

The landfill classes are implemented as follows:

- Inert waste landfills (class A)
- Non-hazardous waste landfills with the following subcategories:
  - Inorganic non-hazardous waste (subcategory B1b),
  - Mixed non-hazardous waste with significant organic content (subcategory B3),
- Hazardous waste landfills (class C)

### 1.5.1.2 *Acceptance Procedure*

#### Basic Characterisation

The basic characterisation is defined by Section 1, Annex II to Decree 20/2006.

The function of the basic characterisation is implemented by §12, Section 1 and in particular by Section 1.1, Annex II of the above mentioned decree. The basic information on the waste is fully transposed. The period for record keeping is set by §6 of Decree 164/2003. All hazardous waste documents have to be kept for at least 10 years whereas all non-hazardous waste documents have to be kept at least 5 years.

The fundamental requirements for the basic characterisation are stipulated in §5 and Section 1.1. of Annex 2 to Decree 20/2006. Point c) is implemented by a general ban to dispose of waste which was not pre-treated at a landfill, set by Article 19(5) of the Waste Management Act 2000/43. Further this treatment obligation is stipulated in §5(1) of Decree 2006/20.

Point k) is only partially implemented as recycling is not particularly mentioned, but economical re-use. According to the Hungarian Ministry of Environment recycling will be added with an amendment of the Decision. This amendment is envisaged after the implementation of the new requirements including definitions of the new Waste Framework Directive (2008/98/EC).

The testing requirements are stipulated in §10 and Point 1.1, Annex II, Decree 2006/20. Regularly generated waste is defined. As a general rule waste must be tested to obtain information. The minimum requirements consist of a leaching test.

Cases where testing is not required are stipulated in the same section and fully comply with the WAC Decision. Also the list, indicating all waste types which are exempted from testing, is implemented accordingly by Hungarian legislation.

#### Compliance testing

Compliance testing is accordingly transposed into national legislation by Section 1.2, Annex II to Decree 20/2006. Tests used for compliance testing shall be one or more of those used in the basic characterisation. Testing shall at least consist of a batch leaching test and compliance testing has to be performed at least once a year. The period for record keeping for documents of compliance testing evidencing the quality of the waste received at the facility is 5 years for non-hazardous waste documents and 10 years for hazardous waste documents. This is set by §6 of Decree 164/2003.

#### On-site verification

On-site verification is implemented by Section 1.3, Annex II to Decree 20/2006 and is fully in compliance with the WAC Decision.

No rapid test methods are defined.

On-site samples shall be stored for at least one month.

#### 1.5.1.3 Waste Acceptance Criteria

The waste acceptance criteria are implemented by Section 2.4, Annex II, Decree 20/2006 and are mainly in compliance with the WAC Decision requirements. The possibility to accept waste with higher leaching limit values waste is accordingly set. A case-by-case permit and special provisions must be involved in the landfill operation permit. Reporting to the EC is implemented by Article 54(A) of the Act of 2000 on Waste Management.

The leaching limit values are listed in Annex II to Decree 20/2006. The chosen test method is L/S=10 l/kg and defined for all landfill classes. Further, the percolation test may be chosen alternatively.

Monolithic waste shall be tested in granular form after crunching and has to comply with the limit values set out for granular waste.

In Hungarian legislation it is stipulated in Section 1.4, Annex II, Decree 20/2006 that a sampling plan must be prepared for sampling considering the CEN or national standards. Hungary is a CEN member. Hence, CEN standards are used primarily and if available. Otherwise national standards are used. The priority of CEN standards is mentioned in the Act on National Standardization (Act XXVIII of 1995).

### Criteria for landfills for inert waste

The leaching limit values for landfills for inert waste are listed in Table 2.1.-2., Section 2.1.2., Annex II, Decree 20/2006 and fully comply with the leaching limit values set by the WAC Decision. The only divergences regard the short list.

The short list indicating the waste types exempted from testing is identical to the WAC Decision. However, the footnote (\*) is only partially transposed as it is not particularly stated that no polluted C&D waste and C&D waste (treated or painted) with dangerous substances may not be accepted as inert waste. However, in this context inert waste is clearly defined and may not contain hazardous substances. In case of suspicion the waste has to be tested and shall be rejected in case of non-compliance. Testing obligation in case of suspicion is defined in Section 2.1 of Annex II. All other wastes not appearing on the list have to be tested.

Also the limit values for total organic content of organic parameters indicated by Table 2.1.-3., Annex II, Decree 20/2006 are fully compliant. The limit value for PAH (16 congeners) is 1 mg/kg of dry matter. The footnote for TOC is missing. Therefore the Hungarian legislation is more stringent in comparison to the WAC Decision.

It is not particularly mentioned that waste may be only accepted without testing if it is a single stream (one source) of a single type and that different wastes may be accepted together provided they are from the same source.

### Criteria for landfills for non-hazardous waste

The acceptance criteria defined for waste acceptable at landfills for non-hazardous waste are in line with the WAC Decision and transposed into national legislation by Section 2.2.1, Annex II to Decree 20/2006. The additional subcategories and leaching limit values for non-hazardous waste are also in accordance with the EU legislation.

The requirements to dispose of gypsum waste are implemented by Section 2.2.3., Annex II, Decree 20/2006 fully comply with the WAC Decision. The limit values for TOC (5%) and DOC (380L/S=2l/kg (mg/kg dry substance)) or 800L/S=10l/kg (mg/kg dry substance) or 250mg/l (percolating test)) that shall apply to wastes landfilled together with gypsum waste are not explicitly mentioned. However, gypsum waste may only be landfilled in non-hazardous waste landfills of subcategory B1b (limited concentrations of biodegradable content). Therefore, the implementation fully complies with the WAC Decision.

The mixed collections of non-hazardous solid waste listed in EWC as division 20 (Municipal wastes (household wastes, and similar commercial, industrial and institutional wastes) including separately collected fractions), may be accepted without testing, except for EWC 200141 (wastes from chimney sweeping). Latter has to fulfil the leaching limit values set out for non-hazardous and stable non-reactive hazardous waste. This is in line with the WAC Decision as long as all the necessary information for the basic characterisation is know and duly justified to the full satisfaction of the competent authority as stated in section1.1.4 b) of the Annex to the WAC Decision. As the EWC 200141 is tested additionally this provision exceeds the requirements of the WAC Decision.

### Criteria for hazardous waste acceptable at landfills for non-hazardous waste

Criteria for stable, non-reactive hazardous waste are compliantly implemented by Section 2.2.1, Annex 2 to Decree 20/2006. The ANC has to be measured as ANC/BNC test are obligatory for the stabilised wastes which are often embedded into concrete. In this condition, the pH can be around 12. Hence, the amphoteric elements are dissolved. The waste is deemed to be acceptable in case it does not exceed the leaching limit values for hazardous waste.

**Specific criteria for physical stability and bearing capacity for stable, non-reactive hazardous waste are not defined.**

Criteria for asbestos waste are transposed into national legislation by Section 2.2.2., Annex II to the relevant Decree and fully in line with the WAC Decision. However, sprinkling is not particularly mentioned in case of damaged packaging.

### Criteria for waste acceptable at landfills for hazardous waste

The criteria and leaching limit values for hazardous waste landfills are implemented by Section 2.3., Annex II to Decree 20/2006 and are generally in accordance with the WAC Decision. The leaching limit values listed in Table 2.3.-2., Annex II of the above mentioned decree are identical to the WAC Decision requirements. The only divergence is that the footnotes are not implemented. Therefore national legislation is more stringent.

As regards the criteria to measure LOI and TOC the limit values are fully compliant and also the ANC has to be evaluated. In addition, specific provisions are set out for the measurement of the ANC. In case more organic components at >pH are dissolved, a pH range from 4 to 12 shall apply for the ANC/BNC test. The waste is deemed to be acceptable in case it does not exceed the leaching limit values for hazardous waste.

### Underground storage

No criteria for underground storage are defined as underground storage is prohibited by a national ban as stipulated in Article 3(3) m), Decree 20/2006.

## 1.5.2 Site visits

The organisation of the site visit has been realised in close cooperation with the Ministry of Environment and Water of Hungary which recommended visiting the Sashegy Regional Waste Management Centre (Győr) (municipal waste landfill, inert and non-hazardous waste) and Saubermacher-Magyarország (Aszód-Galgamácsa) (hazardous waste landfill).

### 1.5.2.1 Site visit to representative inert and non-hazardous waste landfill (Győr, landfill class A and B)

#### General terms



**Figure 1.5-1: Overview of Sashegy Regional Waste Management Centre (under construction) (Hungary); picture by Győr Regional Waste Management Association**

The Sashegy Regional Waste Management Centre, including inert and non-hazardous waste disposal sites, is operated by Győr Kommunális Szolgáltató Kft. The site is located about 7 km southwest to Győr and owned by a group of municipalities (comprising 111 local governments) which are forming the Győr Regional Waste Management Association of Municipalities. The waste management centre was partly financed by the EU Cohesion Fund and is in regular operation since November 2009. Household waste from about 260,000 inhabitants is treated and landfilled at Sashegy Regional Waste Management Centre. The annual amount of delivered waste which is accepted at the waste management centre is about 135,000 t (~110,000 t non-hazardous waste, ~25,000 t inert waste). No industrial inert or non-hazardous waste is disposed of at the landfill site.

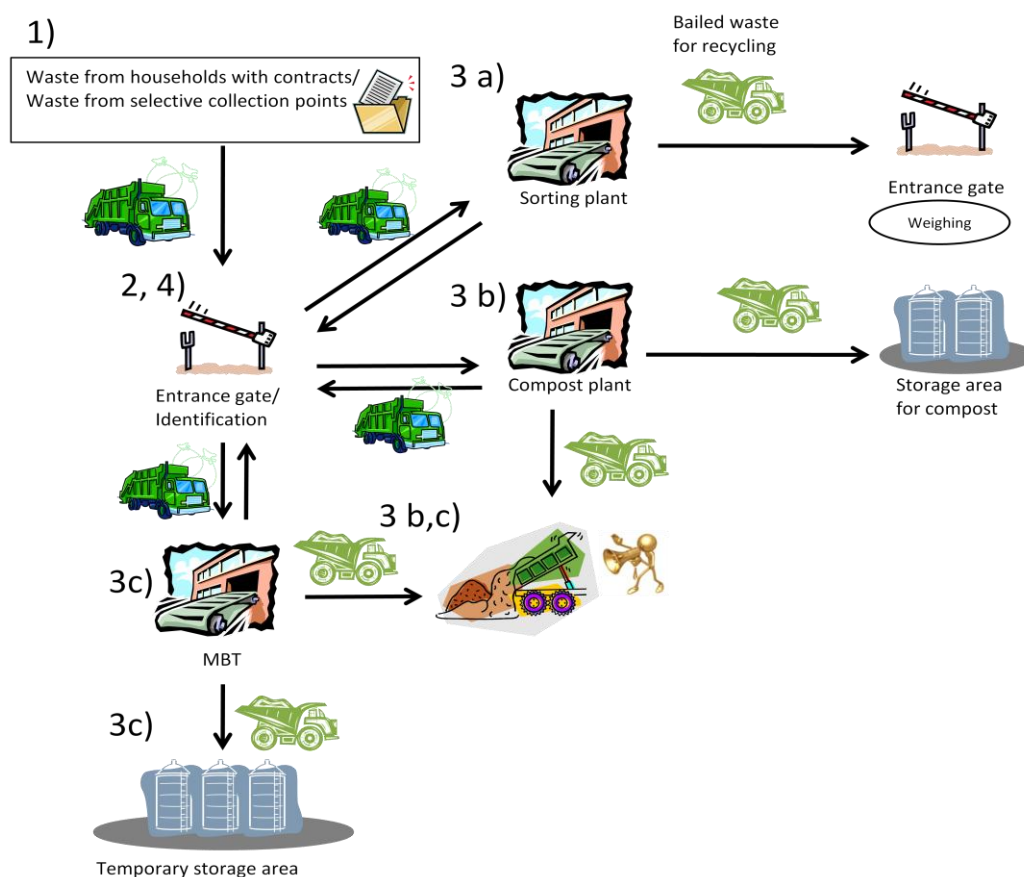
The waste management centre is equipped with different treatment plants (MBT, composting, sorting), a bailing station, landfill for non-hazardous waste, landfill for inert waste, a temporary storage area for waste

to be sent to a planned incineration facility, a civic amenity site, weighing bridge, monitoring centre, administrative building and a visiting centre for educational purposes. The whole waste management centre is equipped with a CCTV system.

The landfill for non-hazardous waste is directly located at the Sashegy Regional Waste Management Centre. The total capacity of the non-hazardous disposal site is 1,200,000 m<sup>3</sup> of which 45,000 m<sup>3</sup> are already filled. The landfill shall operate at least until 2020.

The landfill for inert waste is located about one kilometre away from the waste management centre and only reachable by public road. The total capacity of the disposal site is 964,000 m<sup>3</sup> of which 201,437 m<sup>3</sup> is already filled.

### Waste acceptance procedure



**Figure 1.5-2: Flow chart of the waste acceptance procedure at Sashegy Regional Waste Management Centre (Hungary)**

The landfill site is equipped with an electronic waste management information system where all waste transport vehicles are registered.

The waste acceptance procedure at the landfill site is the following:



1. The waste is delivered exclusively in waste transport vehicles owned by the Győr Regional Waste Management Association. Hence, the transport is fully operated by the community. No form containing detailed information on the waste characteristics is requested.
2. At the entrance gate every lorry has to stop for its identification and weighing. The drivers belong to the public landfill operator Győr Kommunális Szolgáltató Kft. and can enter the landfill site with their swipe card. After transferring all data and weighing the loaded waste, the driver receives a signal to continue to the landfill site. The swipe card carries information concerning the waste transport lorry (e.g. driver, registration number). Via GPS and special computer software the complete route can be controlled simultaneously or afterwards. Further, each waste bin is marked with a barcode which is registered every time the household waste is collected. Additionally, the waste load is monitored by a camera directly installed in the interior of the waste transport lorry. All data are controlled by the weighbridge officers in the control centre and stored electronically.
3. After the entrance procedure, the waste load (either separately collected packaging waste, biodegradable waste or mixed municipal waste) is sent to one of the following areas. The entrance to each of them is only possible with electronic identification and permission. After each unloading the waste is visually controlled:
  - a) separately collected packaging material (from civic amenity sites) is sent to a sorting plant and is afterwards transported to recycling facilities outside the Sashegy Regional Waste Management Centre;
  - b) biodegradable waste (separately collected) is sent to the composting plant and afterwards either transported to the compost area or in case of extracted waste material (e.g. which is not biodegradable) to the active landfill phase to be disposed of;
  - c) mixed household waste is sent to the MBT; after the treatment, the remaining waste is sent to the landfill for disposal. Waste which can be used for energy recovery is bailed, marked with a barcode and stored at a temporary storage area. Later this waste shall be sent to a planned municipal incineration facility which is not yet installed.

The different treatment areas and the landfill field itself are only accessible with a special identification card. Only with electronic identification the different plants can be accessed with former registration at the entrance gate (weighing bridge). The unloading is supervised by several employees in the different treatment units and on the disposal site. If the load contains non-acceptable waste, the driver is stopped at the weighing bridge and is sent back for reloading.

4. After unloading and the final weighing, the waste transport vehicle may leave the landfill site.

The storage of information as hardware or in the computer system is without time limit.

#### Basic characterisation

A basic characterisation for MSW or inert waste is not requested at the landfill site. However, it is planned to take samples for internal use in order to optimise the waste treatment at the different treatment units. This is envisaged after the installation of an internal laboratory.

#### Compliance testing

No compliance testing is performed at the non-hazardous waste landfill nor at the inert waste landfill as the waste is exclusively accepted from households collected by own transport vehicles.

#### On-site verification

No samples are taken.

The visual inspection is carried out already with the camera installed in the internal of the waste transport lorry. Further, open waste transport vehicles are visually inspected at the entrance area with installed cameras. The whole waste management centre, including the different treatment units and the disposal site, is equipped with CCTV. A visual inspection is performed whenever the waste is unloaded at one of the treatment plants and after treatment at the active disposal site.

Visual inspection at the landfill for inert waste is performed at the entrance area and during unloading.

#### Expert proposals related to potential modifications of the WAC Decision

There are no proposals for the WAC Decision.

#### *1.5.2.2 Site visit to representative hazardous waste landfill (Aszód-Galgamácsa, landfill class C)*

#### General terms



**Figure 1.5-3: Overview of the hazardous landfill and active basin at the landfill of Aszód-Galgamácsa operated by Saubermacher (Hungary)**

The hazardous waste landfill of Aszód-Galgamácsa is located in the valley of Galga, about 50 km northeast from Budapest. It started operation in May 1989. Since October 2007 the site is owned and operated by the Hungarian Division (Saubermacher-Magyarország) of the international waste management company Saubermacher Dienstleistungs AG.

The total size of the landfill area is 72 ha. The landfill is a pure hazardous landfill site and equipped with 9 different basins (5 pyramids and 4 basins). Until 2010 about 285,000 m<sup>3</sup> of hazardous waste has already been disposed of.

The pyramids contain toxic substances, acid-, alkali-, galvanic sludges. The waste was put into containers or iron trays and then covered with concrete. Also the three closed basins were built with a technology which is no longer used.

Today, only basin no. 7 is in use and all other basins are in re-cultivation. The basin is 264 m long, 60 m wide and 14 m deep. It is protected with a dome and covers an area of 42\*60 m including the active phase where the waste is disposed of and compacted. In total, the basin contains six separate cells, each with their own gas and leachate system.

The remaining capacity is 315,000 m<sup>3</sup>. The site shall continue operating for the next 15 to 20 years. The current permit for a total amount of 600,000 t is valid until 2016.

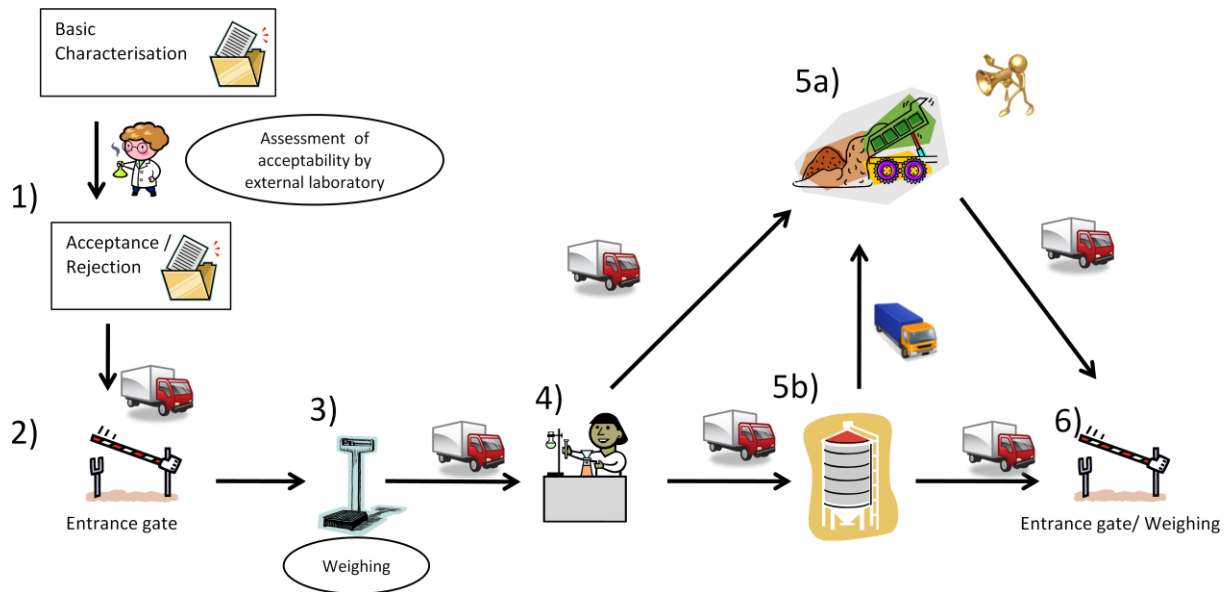
The landfill has a laboratory, a modern gas and leachate management system, a safe deflector system for rainwater and pre-treatment facility for neutralisation of flue ash, contaminated water and acidic liquids. The collection system for leaching water allows retaining the leaching water four times until it is collected in the final evaporation pools. The therein collected sludges are landfilled.

In 2008 about 24,000 t and in 2009 approximately 31,000 t of hazardous waste have been delivered to the site.

The landfill site has approximately 50 direct clients from all over the country delivering regularly waste to the landfill. Further, the landfill has some minor clients with rare waste deliveries. As some clients have delivered waste not being the same as the waste type which was notified by the customer, a catalogue with these clients has been created to improve control management.

The received material is a broad mixture of different hazardous wastes. The mayor waste types are galvanic sludges (contaminated with Ni, Zn, Cr<sub>3</sub> or Cu) or industrial sewage sludges, flue ash after incineration and filtration, waste from the production of fluorescent lamps (dust and glass), glaze sludges as well as contaminated soil and concrete. The waste is accepted in container, iron tray, Intermediate Bulk Container or Big Bag.

### Waste acceptance procedure



**Figure 1.5-4: Flow chart of the waste acceptance procedure at Aszód-Galgamácsa (Hungary)**

The landfill is equipped with an electronic waste data management system. All clients and respective waste loads are registered in the management system.

The waste acceptance procedure at the landfill site is the following:

1. Once a waste type is deemed to be acceptable at the landfill based on its characteristics as specified in the basic characterisation, the customer is informed that the notified waste may be landfilled.
2. The notified load arrives at the gate and the driver has to show the weighing bridge operator the transport document "SZ-Kísérőjegy a Veszélyes Hulladék Szállításához" for the notified waste including amongst others data on the waste producer, waste transport company, destination (landfill), EWC code, waste name and quantity. Further, the driver has to show his personal waste transport licence to the weighing bridge operator.
3. After the vehicle passes the entrance gate, it stops at the weighing bridge and the weighing bridge operator notes the weight. At the same time, it is checked if the waste load contains radioactive waste. The transport documents are checked in detail and the registration number is entered into the waste management system.
4. After weighing, the waste transport vehicle is moved to the interim storage area for sample taking in front of the laboratory which is located next to the weighing bridge. Every waste container and packed waste (e.g. Big Bags) are opened for visual inspection and sample taking. Both are performed by the laboratory director. The waste samples are analysed in the own landfill laboratory. If available, rapid test methods are applied. The waste lorry has to wait until all results from the analyses are available. An internal document "Belső Hulladék Bizonylat" with results of the chemical analysis, waste quantity and date of waste delivery is created. In addition a laboratory

control paper “Fogadási kontroll eredménylap” with all tested substances is filled in by the laboratory personnel. Finally, a disposal ticket “Lerakójegey” is printed from the laboratory to confirm that the delivered waste may be landfilled. In case of non-compliance with the leaching limit values or in case the waste is not the same waste which was notified, the waste is sent back to the producer and may not be disposed of.

5. Waste which is the same as the notified waste and which fulfils the legal requirements, is accepted for landfilling and is either sent to the landfill for unloading or to the pre-treatment facility for stabilisation.
  - a. Waste which may be disposed of without further treatment is directly sent to the place of unloading where the driver has to show the disposal ticket “Lerakójegey” to the responsible person for a safe disposal. The responsible person then decides where the waste should exactly be unloaded in order to avoid chemical reactions and damages of the basin insulation material. For a second time the waste is visually controlled during unloading and when compacted;
  - b. At the treatment facility flue ash is mixed with liquids for neutralisation and liquids are stabilised by additives. At the moment the leaching and rain water of the landfill site is used for the neutralisation of flue ash. After stabilisation, the waste is tested again and if it is in compliance with the legal requirements, it is transported to the disposal site. The responsible person for waste disposal decides where the waste may be landfilled.
6. At the weighing bridge the lorry is weighted a second time and the data are entered into the computer system by the weighing bridge operator. The weighing bridge operator prints twice the weighing bridge document “Mérlegejegey”, which includes data of the waste producer, waste type, delivered waste quantity, day and time of delivery. The document is signed by the laboratory director.

The gathered information is recorded as a paper version for 5 years and as an electronic version for undefined time. Samples are kept for one year.

#### Basic characterisation

After the landfill of Aszód-Galgamácsa is contacted by the waste producer or waste holder, an application form is sent to the waste producer. The waste producer fills in the document and sends it back to the landfill operator together with a sample.

The sample is analysed in an external laboratory and compared with the description and results of the waste producer. The key parameters of these waste types are defined. After the analyses the acceptance / rejection document is filled in and send to the waste producer.

### Compliance testing

Compliance testing of the key parameters which have been set at the basic characterisation is done with every incoming load. The samples are taken directly by the laboratory and rapid tests methods (e.g. Pb, Cr, Cd, Mo, Zn,  $\text{SO}_4^{-2}$ ) are performed if needed.

### On-site verification

After weighing the waste is checked visually. The waste from every container, Big-Bag etc. is sampled by the director of the laboratory in the entrance area (immediately after weighing). The samples are directly analysed in their own certified laboratory. Rapid test methods are performed if needed.

Each waste which is sent to the landfill site is sampled, also the waste from the stabilisation treatment. Further, the waste is visually controlled during unloading at the disposal site.

### Expert proposals related to potential modifications of the WAC Decision

There are no proposals for the WAC Decision.

## 1.6 Country Report Lithuania

The WAC Decision is implemented in Lithuanian legislation by Regulation Nr. 96-3051 with the following deficits:

- In case of basic characterisation, compliance testing and on-site verification it is not clear whether the WAC Decision is set in place or if it is just stated that this legislation is in accordance to the WAC Decision
- The second paragraph of Section 2.3.1. of the Annex to the WAC Decision is missing.
- Criteria (long time criteria stable non-reactive hazardous waste has to fulfil) are not set.
- Several criteria for asbestos waste are not set.
- Underground storage is not implemented, though no underground storage systems exist in Lithuania.
- Possible higher limit value for sulphate and TOC is not implemented
- Non-hazardous waste also has to comply with the other criteria set by the WAC Decision for stable non-reactive hazardous waste
- The limited co-disposal possibilities of gypsum waste are extended to waste containing high concentrations of sulphate

According to information from the national authorities the more detailed requirements of the WAC Decision is set in IPPC permits and Order of Waste Recovery and Disposal, issued for each individual landfill. The information which has to be registered in IPPC permits and Order of Waste Recovery and Disposal is set in Regulation for the Minister of Environment on the Rules on Construction, Operation, Closure and Care after closure of landfills (paragraph 50) and in the Rules of the Minister of Environment on Waste Management (paragraph 42).

Many landfills in addition to the IPPC permits and Order of Waste Recovery and Disposal have additional documents on waste compliance (including a list of EWC codes which can be accepted, and/or a list of information which have to be filled in as: Source and origin of waste, information on the process producing the waste etc.). The information registered in these documents can somewhat differ by landfill, because to date specific requirements are not set. The ministry of Environment is going to define such requirements.

The full transposition of basic characterisation, compliance testing and so on, set by the WAC Decision is set in the “Recommendations on Wastes Acceptance to landfill criteria, Limit values and acceptance procedures” which however is not a legal act.

### 1.6.1 *Legal assessment*

Table-1 provides an overview on the legal documents transposing the WAC Decision requirements into national legislation. Furthermore the table shows a qualitative assessment of the level of implementation or possible divergences which are further explained and justified in the following sections.

Lithuania			
Category	Corresponding national legislation	Implementation	Comments
1. Procedure		~	
1.1 Basic Characterisation	§ 46-1, 47, 48, 50.3, 50.4, 50.5, 53.1, 53.2, 53.3, 58-1, 58-2, 59, 63 of Regulation No. 96-3051	~	Only implemented indirectly by permits and recommendations.
1.1.1 Function	§ 46-1, 48, 50 (50.3, 50.4, 50.5) of Regulation No. 96-3051, § 42. of Regulation No 63-2065	~	Only implemented indirectly by permits and recommendations.
1.1.2 Fundamental requirements	§ 50 (50.3, 50.4, 50.5), 53 (53.1, 53.2, 53.3) of Regulation No. 96-3051, § 42 Of Regulation No 63-2065	~	Only implemented indirectly by permits and recommendations.
1.1.3. Testing	§ 53.3. of the Regulation No. 96-3051 Regulation of the Minister of Environment No. D1-305 on the Methods, Used for Waste Testing	~	Only implemented indirectly by permits and recommendations.
1.1.4. Cases where testing is not required	Section 2, 1a) of the Annex II to Regulation No. 96-3051	~	Only implemented indirectly by permits and recommendations.
1.2 Compliance Testing	§ 50.3, 50.4, 50.5, 53.1., 53.2., 53.3, 59 of Regulation No. 96-3051, § 42 of Regulation No 63-2065,	~	Only implemented indirectly by permits and recommendations.
1.3 On-site verification	§ 50.3, 50.4, 50.5, 53.1, 53.2, 58-2 of Regulation Nr. 96-3051, § 42 of Regulation No 63-2065	~	Only implemented indirectly by permits and recommendations.
2. Acceptance Criteria	Chapter VIII and IX of the Regulation (50 (50.3, 50.4, 50.5), 46-1, 47, 48)	✓	
2.1 Landfills for inert waste	Part 1 of the Annex II, 42, 44, 45, 46-1 to the Regulation, 2000, No. 96-3051	✓	
2.1.1 Short list		✓	
2.1.2 Limit values	Table 1 and 2 of the Annex II to the Regulation, 2000, No. 96-3051	+	
2.1.2.1 Leaching limit values	Table 1 of the Annex II to the Regulation, 2000, No. 96-3051	+	Possible higher limit value for sulphate is not implemented
2.1.2.2 Limit values for total content of organic parameters	Table 2 of the Annex II to the Regulation, 2000, No. 96-3051	+	Possible higher limit value for TOC is not implemented
2.2 Landfills for non-hazardous waste	Part 2 of the Annex II, 41, 46-1 to the Regulation, 2000, No. 96-	+	



Lithuania			
Category	Corresponding national legislation	Implementation	Comments
	3051		
2.2.1 Without testing	Section 1 (a) Part 2 of the Annex II and § 37.7 to Regulation, 2000 No. 96-3051	✓	
2.2.2 Limit values for non-hazardous waste	Part 2., Table 3, 4, 5 and 6 of the Annex II to Regulation, 2000, No. 96-3051	+	Non-hazardous waste also has to comply with the other criteria set by the WAC Decision for stable non-reactive hazardous waste.
2.2.3 Gypsum waste	Section 1 (c) Part 2 and 3-4 Tables of the Annex II to Regulation, 2000, No. 96-3051	+	In addition waste containing high concentrations of sulphate are included
2.3 Criteria for hazardous waste acceptable at landfills for non-hazardous waste, Art 6 c iii	Section 2, Part 2., of the Annex II, 41.3 to Regulation , 2000, No. 96-3051	~	
2.3.1 Leaching limit values	Section 2, Table 3, 5 of the Annex II to Regulation, 2000, No. 96-3051	✓	
2.3.2 Other criteria	Section 2., Part 2, Table 4 and 6 of the Annex II to Regulation, 2000, No. 96-3051	+	Acceptance of a higher limit value for TOC is not implemented
2.3.3 Asbestos waste	Section 1 (d) Part 2, § 43 of the Annex II to Regulation, 2000, No. 96-3051	~	Asbestos waste must be managed according to the requirements set in Regulation No. 10-403. Several criteria for asbestos waste are not set, WAC Decision is applied directly.
2.4. Landfills for hazardous waste	Part 3 of the Annex II, 39, 40, 46-1 to Regulation Nr. 96-3051	+	
2.4.1 Leaching limit values	Part 3, Table 7 and 9 of the Annex II to Regulation Nr. 96-3051	+	Acceptance of a higher limit value for sulphate and TOC is not implemented
2.4.2 Other criteria	Part 3, Table 8 of the Annex II to Regulation Nr. 96-3051	+	Acceptance of a higher limit value for sulphate and TOC is not implemented
2.5 Criteria for underground storage		—	Not implemented. Underground storage systems do not exist in Lithuania

**Table 1.6-1: Implementation of WAC Decision requirements in Lithuanian Legislation.**

### 1.6.1.1 *Legal framework*

The WAC Decision is mainly implemented by Lithuanian legislation by:

- The Rules on Waste Landfills Construction, Operation, Closure and Care after Closure (2000, Nr.96-3051 and amendments) (herein after referred as Regulation Nr. 96-3051)

And further by

- Official Gazette 2004 No 97-3586 “Waste Landfill construction, operation, and closing, surveillance after closing and approving rules” (herein after referred as Regulation Nr. 97-3586)
- Official Gazette 2007 No 53-2061 “Closing and after care” (herein after referred as Regulation Nr. 53-2061)
- Official Gazette 2008 No 111-4255 “Closing and after care” (herein after referred as Regulation Nr. 111-4255)
- The Rules on Waste Management, 1999, No. 63-2065 (with the last amendments), (herein after referred as Regulation Nr. 63-2065)
- Regulation of the Minister of Environment No. D1-305 on the Methods, Used for Waste Testing
- The Rules on the Management of Construction Waste, 2007, No. 10-403, (herein after referred as Regulation Nr. 10-403)
- The Programme on Asbestos Disposal, approved by the Government, 2008, No. 48-1777, 2009, No. 103-4317,
- The Provision on Working with Asbestos, 2004, No 116-4342.

A non-legally binding document is the “Recommendations on Wastes Acceptance to Landfills Criteria, Limit Values and Acceptance Procedures”, which is a translation of the WAC Decision into Lithuanian language.

The defined national landfills classes are in accordance with the WAC Decision.

A guideline for the acceptance of waste, which is a literally translation of the WAC Decision can be downloaded at:

<http://www.am.lt/VI/index.php#a/6058>

### 1.6.1.2 *Acceptance Procedure*

#### Basic Characterisation

The basic characterisation is implemented by § 46-1, 48, 50.3, 50.4, 50.5, 53.1, 53.2, 53.3 and 58-1, 58-2, 59, 63 of the Regulation Nr. 96-3051. These paragraphs are amended by Regulation Nr. 97-3586, Regulation

Nr. 53-2061 and Regulation Nr. 111-4255. Further implementations are in § 42 of Regulation No. 63-2065 (with the last amendments).

§ 42 of Regulation No. 63-2065 includes a list of information which should be part of the IPPC permit:

- Information of the company producing the treated or disposed of waste
  - Information about the technical process for recovery or disposal of the waste
  - Description and purpose of the process
  - Characterisation of used or disposed of waste
  - Description of facility for used or disposed of waste
  - Description of process control and monitoring measures for used or disposed of waste
  - Material balance for recovery or disposal process
- Waste storage description
- Used waste acceptance and control procedures
- Other information

§ 46-1 of Regulation Nr. 96-3051 implements, that waste shall only be accepted if it fulfils the acceptance criteria set out in the WAC Decision. This paragraph does not implement Section 1 of the Annex to the WAC Decision.

Waste acceptance and control procedures have to be implemented in IPPC permits and Regulations of Waste Use and Disposal. Furthermore section 1 of the Annex to the WAC Decision including the function of basic characterisation and fundamental requirements for basic characterisation are transposed into the “Recommendations on Wastes Acceptance to Landfills Criteria, Limit Values and Acceptance Procedures”, but this document is not legally binding. Anyway none of these procedures is a proper legal implementation of the WAC Decision.

The time of record keeping is set according to landfill classes. The time for record keeping of basic characterisation is 3 years for inert and non-hazardous waste landfills. For hazardous waste landfills records have to be kept for 5 years.

#### Compliance testing

Compliance testing is implemented by § 50.3, 50.4, 50.5, 53.1, 53.2, 53.3, 59 of Regulation No. 96-3051 which is amended by Regulation 2004, Nr. 97-3586 and § 42 of Regulation No. 63-2065 (with the last amendments).

Waste acceptance and control procedures have to be implemented in IPPC permits and Regulations of Waste Use and Disposal. Furthermore the “Recommendations on Wastes Acceptance to Landfills Criteria, Limit Values and Acceptance Procedures” transposes compliance testing as described in the WAC Decision. Anyway none of these procedures is a proper legal implementation of the WAC Decision.

The time of record keeping is set according to landfill classes. The time for record keeping of compliance testing is 3 years for inert and non-hazardous waste landfills. For hazardous waste landfills records have to be kept for 5 years.

### On-site verification

On-site verification is implemented by § 50.3, 50.4, 50.5, 53.1, 53.2, 58-2 of Regulation Nr. 96-3051 which is amended by Regulation Nr. 97-3586, Regulation Nr. 111-4255, and Regulation No.63-2065.

It is indicated that an on-site verification shall take place at the entrance gate to the landfill site as well at the place of unloading. Further it is stipulated that the documents have to be checked. No rapid test methods are defined.

On-site verification is as equivocally implemented as the basic characterisation and compliance testing.

Samples for on-site verification have to be kept for at least one month.

#### 1.6.1.3 *Waste Acceptance Criteria*

According to § 46-1 the acceptance criteria of the WAC Decision are directly implemented thus including section 2 of the Annex to the WAC Decision.

Test methods and procedures are defined by the Recommendations of the application of the WAC Decision and by the Regulation of the Minister of Environment No. D1-305 on the Methods, Used for Waste Testing. The Regulation literally implements section 3 of the Annex to the WAC Decision referring to testing.

### Criteria for waste acceptable at landfills for inert waste

The criteria for waste acceptable at landfill for inert waste are implemented by part 1 of the Annex II, § 42, 44, 45, 46-1 to Regulation 2000 Nr. 96-3051.

The short list to accept waste without testing has not been adopted by Lithuanian legislation; the WAC Decision is applied directly.

The leaching limit values are literally implemented in the Lithuanian legislation. The column with a liquid solid ratio of 10 l/kg is literally transferred. The footnote concerning sulphate has not been adopted. Therefore the exclusion to accept higher limit values for sulphate as stated in the WAC Decision is not possible in Lithuania.

The limit values concerning other organic substances are literally implemented by national legislation; however the footnote which regards TOC has not been implemented. In this point the Lithuanian legislation is therefore more stringent than the WAC Decision.

The limit value for PAH is set at 100 mg/kg dry substance.

### Criteria for non-hazardous waste acceptable at landfills for non-hazardous waste

The criteria for non-hazardous waste acceptable at landfills for non-hazardous waste are implemented by § 37.7 and part 2 of the Annex II, 41, 46-1 to Regulation 2000 Nr. 96-3051.

The leaching limit values for non-hazardous waste to be disposed of at landfills for non-hazardous waste are identical to the WAC Decision. The column with a liquid solid ratio of 10 l/kg has been adopted. It is stated that standard BS EN 12457/1-3 has to be used.

Monolithic waste:

For non-hazardous monolithic waste the following criteria have to be fulfilled:

- a) The non-hazardous monolithic waste has either to fulfil the same leaching limit values as granular non-hazardous waste (after crunching of the monolithic waste) or has to fulfil the leaching limit values of the following table (standard EA NEN 73775:2004 has to be used)

Limit values for monolithic waste	
Components	mg/m <sup>2</sup>
As	1.3
Ba	45.0
Cd	0.2
Cr	5.0
Cu	45.0
Hg	0.1
Mo	7.0
Ni	6.0
Pb	6.0
Sb	0.3
Se	0.4
Zn	30.0
Cl <sup>-</sup>	10,000
F <sup>-</sup>	60.0
SO <sub>4</sub> <sup>-2</sup>	10,000
DOC	Must be evaluated

**Table 1.6-2: Limit values for monolithic waste for non-hazardous waste landfills**

- b) pH value, conductivity, and ANC have to be evaluated,
- c) The physical stability has to be > 1 MPa (28 days after stabilisation),
- d) The monolithic block has to measure at least 40 cm in each direction,
- e) Before stabilisation the material has to have a LOI < 10 % and a TOC of < 6 %.

Gypsum waste or waste containing high concentrations of sulphate can be accepted in cells where no biodegradable waste is landfilled and the limit values of DOC and TOC from table 3 and 4 of the Annex II to the Regulation are not exceeded.

Criteria for hazardous waste acceptable at landfills for non-hazardous waste

Criteria for hazardous waste accepted at landfills for non-hazardous waste are implemented by part 2 of the Annex II to Regulation 2000 Nr. 96-3051.

Criteria which have to be fulfilled by stable non-reactive hazardous waste in accordance to Section 2.3. of the Annex to the WAC Decision is only implemented in the Lithuanian legislation by its direct reference to the WAC Decision. It is stated that the stable non-reactive hazardous waste shall not be disposed of with biodegradable material. Granular stable non-reactive hazardous waste can be accepted if:

- The leaching values do not exceed the values of table 3 and 4 of Annex II to Regulation 2000 Nr. 96-3051. (The values are literally implemented from the WAC Decision and correspond to the table in section 2.3.1 and section 2.3.2.). Table 4 does not include the footnote related to the TOC value. Therefore higher TOC values depending on the DOC value can be accepted.

Furthermore, one of the following conditions has to be fulfilled:

- Physical stability of  $\geq 50$  kPa,
- A density index of  $< 5$  %

Monolithic stable non-reactive hazardous waste has to fulfil the same criteria as describes for non-hazardous monolithic waste.

Criteria for asbestos waste are implemented by section 1 (d) of Part 2 of the Annex to Regulation 96-3051. Asbestos waste must be managed according to the requirements set in Rules on the Management of Construction Waste, 2007, No. 10-403, the Programme on Asbestos Disposal, approved by the Government, 2008, No. 48-1777, 2009, No. 103-4317 and the Provision on Working with Asbestos (2004, No 116-4342).

According to 1 (d) of Part 2 of the Annex to Regulation 96-3051 it is stipulated that asbestos waste can be accepted if the waste contains no other hazardous substance than bound (by a binding agent or packed in plastic) asbestos waste. Construction material containing waste has to be disposed in a separated cell of the landfill if it is sufficiently self-contained.

According to the Rules on the Management of Construction Waste, 2007, No. 10-403 it is also stated that asbestos waste has to be kept wet and packed in a plastic package.

All other criteria defined by the WAC Decision have not been transposed to national legislation. Even though § 46-1 implements the acceptance criteria of the WAC Decision in general into Lithuanian legislation, this does not cover the proper disposal and treatment on the landfill and during and after the aftercare phase.

#### Criteria for hazardous waste acceptable at landfills for hazardous waste

Criteria for hazardous waste to be accepted on landfills for hazardous waste are implemented by part 3 of Annex II, 39, 40, 46-1 to the Regulation 2000 Nr. 96-3051.

The leaching limit values for waste to be accepted at landfills for hazardous waste are literally implemented by the Lithuanian legislation. Also the limit values for the other criteria are identical to the WAC Decision, except the footnote for TOC which is not included and therefore no higher TOC values can be accepted even if the DOC value is low. Therefore the Lithuanian legislation is more stringent concerning the TOC value.

For hazardous monolithic waste the following criteria have to be fulfilled:

- a) The non-hazardous monolithic waste has either to fulfil the same leaching limit values as granular non-hazardous waste (after crunching of the monolithic waste) or has to fulfil the leaching limit values of the following table (standard EA NEN 73775:2004 has to be used):

Limit values for monolithic waste	
Components	mg/m <sup>2</sup>
As	20.0
Ba	150.0
Cd	1.0
Cr	25.0
Cu	60.0
Hg	0.4
Mo	20.0
Ni	15.0
Pb	20.0
Sb	2.5
Se	5.0
Zn	100.0
Cl <sup>-</sup>	20,000
F <sup>-</sup>	200
SO <sub>4</sub> <sup>-2</sup>	20,000
DOC	Must be evaluated

**Table 1.6-3: Limit values for monolithic waste for hazardous waste landfills**

- b) pH value, conductivity, and ANC have to be evaluated,
- c) The physical stability has to be > 1 MPa (28 days after stabilisation),
- d) The monolithic block has to measure at least 40 cm in each direction,
- e) Before stabilisation the material has to have a LOI < 10 % and a TOC of < 6 %.

### Underground storage

Criteria for underground storage are not transposed into the Lithuanian legislation. However there are no underground storage systems in Lithuania.



## 1.6.2 Site visit Lithuania

The organisation of the site visit has been realised in close cooperation with the Ministry of Environment of Lithuania which organised the visit to the landfill site Atliekų Tvarkymo Centras (Siauliai) (non-hazardous waste landfill).

### 1.6.2.1 Site visit to representative non-hazardous waste landfill (Siauliai, landfill class B)

#### General terms



**Figure 1.6-1: Overview of the non-hazardous landfill sites of Siauliai (Lithuania))**

Since 2002 seven municipalities established the organisation, which operates two different landfill sites; an old landfill site with storage and a separation area and a new landfill site. The old landfill site has a capacity of 1.5 million tonnes of waste. Even though there is capacity left, it had to be closed due to the Landfill Directive. The re-cultivation of the landfill shall be finished by August 2010. The separation area as well as the composting area will continue its operation. At the separation area tyres, paper, plastic, metal, WEEE as well as hazardous wastes are collected.

The establishment of the new landfill site in Siauliai started in 2005. On the 1<sup>st</sup> July 2007 the first section of the landfill site started operation. It has a capacity of about 410,000 tonnes of which about 300,000 are already filled. A second section is already in preparation with a size of about 2.7 ha. There is further the possibility to realise a third and fourth section with 1.9 and 2.8 ha respectively. The landfill site serves about 370,000 natural and 6,700 legal persons.

Each year about 110,000 to 118,000 tonnes of waste are disposed. This is expected to change dramatically once the MBT has started operation, which is expected in 2013. All the incoming waste will be treated at

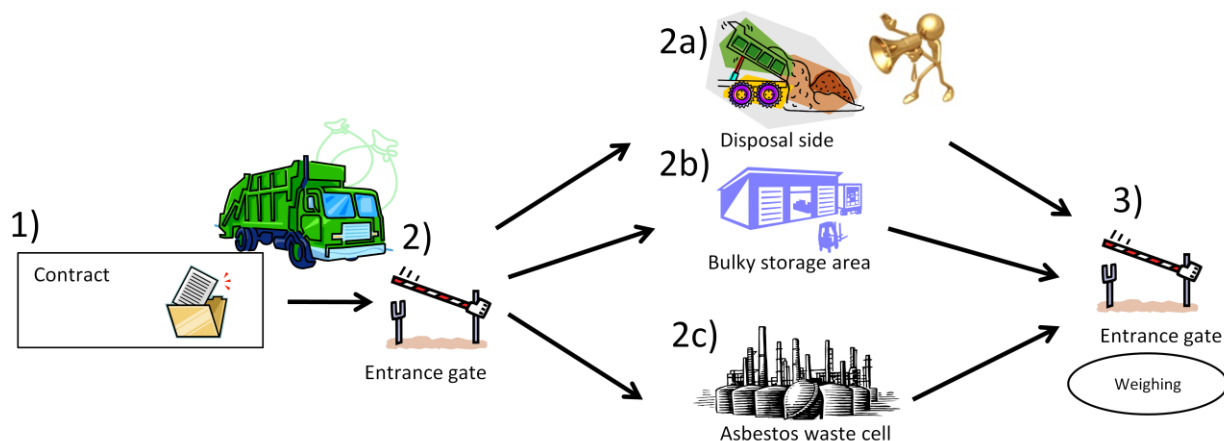
the MBT. After the MBT the incoming waste will be split into 40 % bio waste, 40 % of waste for incineration, 10 % secondary raw material and about 10 % of waste which has to be landfilled.

The landfill site consist of four disposal sites, a weighing bridge, a sewage water treatment plant, a storage area for bulky waste and a separated cell for asbestos waste. The asbestos waste cell is an excavated hole, in which rainwater which cannot flow off keeps the majority of the waste wet. In hot summer days the waste is also sprinkled. As long as the hole is not completely filled with asbestos waste it is not covered.

In the moment there are 6 costumers, 2 of them are private and the other 4 are controlled by municipalities. All 6 costumers have slightly different contracts due to historical reasons. The contracts will be uniformed by the 1<sup>st</sup> September 2010. In the moment there is a call for tender for waste collecting companies. Each municipality will choose a collection company separately. These companies will receive a 2-3 year contract with the landfill site to dispose their collected waste.

100 % of the waste which is disposed at the landfill site is household waste excluding a small amount of asbestos waste which is disposed separately and some construction waste which is used for the construction of streets on the disposal site.

#### Waste acceptance procedure



**Figure 1.6-2: Flow chart of the waste acceptance procedure at Siauliai (Lithuania)**

Only companies which have a contract with the landfill site are allowed to bring the waste to the landfill site. The waste acceptance procedure at the landfill site is the following:

1. At the weighing bridge a declaration of waste which is brought by the driver is given to the weighing bridge operator. This document includes among others the national transport registration number, waste producer (name and stamp), waste owner (name, signature and stamp), waste receiver (name and signature), vehicle registration number, waste type, price and weight. The document consists of two parts. One is kept at the landfill site and the other is given to the driver. The data are also entered into the computer system.
2. Depending on the waste the driver is either send to one of three possible locations:
  - a) Disposal site where the unloading of the waste is controlled

- b) Bulky storage area
  - c) Asbestos waste cell
3. After unloading the lorry drives back to the weighing bridge where the lorry is weighted again to receive the net weight of the disposed waste. A weighing bridge document is filled in, signed by the weighing bridge operator and a copy is given to the driver. The weighing bridge document includes among others data about the time and date of arrival of the waste, vehicle registration number, driver name, weight, EWC code and the weighing bridge operator name.

A summary of the disposed waste is send to the regional Inspectorate once every 3 month and annually to the Ministry. The weighing bridge document is kept at the company for 5 years and afterwards in an archive for 20 years. Information in the computer is kept at the server without time limit.

#### Basic characterisation

No basic characterisation is necessary as all the disposed waste is household waste.

#### Compliance testing

No compliance testing has to be performed on the landfill site as all the accepted waste is household waste and therefore compliance testing is not necessary.

#### On-site verification

On-site verification is performed by the weighing bridge operator as well as by an employee on the disposal site and by the compactor driver. Construction material used for constructing streets on the disposal site is especially visually controlled against contaminations.

#### Expert proposals related to potential modifications of the WAC

There are no proposals for the WAC Decision.

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## 1.7 Country Report Latvia

The WAC Decision is implemented in the Latvian legislation by Regulation 474/2006. The following divergences to the WAC Decision have been identified:

- Function of basic characterisation has not been implemented.
- Fundamental requirements are only set for hazardous waste.
- Section 1.1.3 Testing of the Annex to the WAC Decision is not implemented.
- Record keeping for compliance testing is not set.
- Sampling and sample keeping is not defined except for hazardous waste.
- No PAH value is set.
- Criteria for monolithic waste are not set.
- Municipal waste is used instead of the term “non-hazardous waste” and can therefore be disposed with stable non-reactive hazardous waste.
- The footnote of the table including the short list of waste types which can be accepted at landfills for inert waste without testing is different to the WAC Decision. The footnote states, that inclusions may not exceed 15 % of the total waste and that waste which can be accepted without compliance testing has to be in accordance with Regulation No 985/2004
- A definition for stable non-reactive is not provided.
- For hazardous waste the ANC does not have to be evaluated. Criteria for physical stability and bearing capacity of the waste as well as criteria to ensure that the hazardous waste is stable and non-reactive are not set.
- Criteria for underground storage are not set.

### 1.7.1 *Legal assessment*

Table 1.7-1 provides an overview on the legal documents transposing the WAC Decision requirements into national legislation. Furthermore the table shows a qualitative assessment of the level of implementation or possible divergences which are further explained and justified in the following sections.

Latvia			
Category	Corresponding national legislation	Implementation	Comments
1. Procedure		~	
1.1 Basic Characterisation	§36 of Regulation No 474/2006	~	
1.1.1 Function	---	—	Not implemented.
1.1.2 Fundamental requirements	Annex 1 to Regulation No 474/2006	~	Only stipulated for hazardous waste.
1.1.3 Testing	---	—	Not implemented
1.1.4. Cases where testing is not required	§ 40 of Regulation No 474/2006	~	Section 1.1.4 b) of the annex to the WAC Decision is not set.
1.2 Compliance Testing	Chapter 4.2, 4.3, 4.4 to Regulation No 474/2006	~	Time for record keeping is not set.
1.3 On-site verification	§ 38, 41 and 41 of Regulation No 474/2006	~	Sampling and sample keeping others than hazardous waste are not set.
2. Acceptance Criteria	Annex 2 to Regulation No 474/2006	~	Not all standards are transposed.
2.1 Landfills for inert waste		~	
2.1.1 Short list	Annex 6 to Regulation No 474/2006; Regulation no 985	~	Footnote is divergent
2.1.2 Limit values		~	
2.1.2.1 Leaching limit values	Annex 7 to Regulation No 474/2006	✓	
2.1.2.2 Limit values for total content of organic parameters	Annex 7 to Regulation No 474/2006	~	PAH limit value is not set.
2.2 Landfills for non-hazardous waste		~	
2.2.1 Without testing	§ 33, 55 and Annex 5 to Regulation No 474/2006	✓	
2.2.2 Limit values for non-hazardous waste	Annex 5 of Regulation No 474/2006	~	Criteria for monolithic waste are not set. Municipal waste is used instead of the term “non-hazardous waste” and can therefore be disposed with stable non-reactive hazardous waste.
2.2.3 Gypsum waste	§56 of Regulation No 474/2006	~	No TOC or DOC limit values are provided.
2.3 Criteria for hazardous waste acceptable at landfills for non-hazardous waste, Art 6 c iii	---	---	A definition for stable non-reactive is not provided.
2.3.1 Leaching limit values	Annex 7 of Regulation No 474/2006	~	Criteria for monolithic waste are not set.
2.3.2 Other criteria	Annex 7 of Regulation No 474/2006	~	ANC does not have to be evaluated. Criteria for physical stability and bearing capacity of the waste as well as criteria to

Latvia			
Category	Corresponding national legislation	Implementation	Comments
			ensure that the hazardous waste is stable and non-reactive are not set. Criteria for monolithic waste are not set
2.3.3 Asbestos waste	§ 57 of Regulation No 474/2006	+	Requirements set out in Annex I, point 3.2 and 3.3 of the Landfill Directive cannot be reduced.
2.4. Landfills for hazardous waste		~	
2.4.1 Leaching limit values	Annex 8 of Regulation No 474/2006	~	Criteria for monolithic waste are not set.
2.4.2 Other criteria	Annex 7 of Regulation No 474/2006	~	The ANC does not have to be evaluated.
2.5 Criteria for underground storage	---	—	Not implemented

**Table 1.7-1: Implementation of WAC Decision requirements in Latvian Legislation**

### 1.7.1.1 *Legal framework*

The WAC Decision is implemented in Latvian legislation by Regulation “regarding the construction of landfill sites, the management, closure and re-cultivation of landfill sites and “waste dumps”, Regulation No 474/2006, adopted 13 June 2006, (hereinafter referred to as Regulation No 474/2006).

This regulation also refers to Regulation “regarding waste classification and characteristics making waste hazardous”, Regulation No 985 of 30 November 2004 (hereinafter referred to as Regulation No 985/2004).

The set landfill categories are the same as in the WAC Decision. No sub-categories are defined.

In Latvian legislation non-hazardous waste is implemented as municipal waste. This renders possible to co-dispose municipal waste with stable, non-reactive hazardous waste, which is not allowed according to section 2.2.1. of the Annex to the WAC Decision.

### 1.7.1.2 *Acceptance Procedure*

#### Basic Characterisation

Basic characterisation is implemented by § 36 of Chapter 4 and Annex 1 to Regulation No. 474/2006.

The function of basic characterisation is not defined in Latvian legislation.

Before accepting a waste load, an operator shall obtain a description of the waste from the waste supplier (basic characterisation) which has to be part of the contract. The contract shall include how the parties check the compliance of the waste delivered to the landfill site or “waste dump” with the requirements specified in the contract, as well as the action in cases the waste which is delivered fails to comply with the requirements of the contract. If the requested waste description has not been included to the contract, a separate description of waste shall be submitted for each waste load.

The waste producer has to fill in an official template for the basic characterisation which is provided in Annex 1 to Regulation No 474/2006. It has to include information on name, address of the waste supplier, waste transport permit number with issued date and valid date, class of waste, designation of waste, weight and volume of waste. Waste class and its designation have to be indicated according to Regulation No 985/2004.

Only in case of hazardous waste the basic characterisation shall further include the following aspects:

- name and address of the producer of hazardous waste;
- information regarding the manufacturing process as a result of which the waste has been generated;
- the methods of waste treatment used or substantiation of irrelevance for waste treatment;
- physical characteristics (odour, colour, physical state) and waste amount;

- the chemical waste composition and results of the leaching test;
- corresponding codes of the dangerous characteristics of waste; (indicated in accordance with Regulation No 474/2006/2006);
- the type of a landfill site at which the waste may be disposed of;
- information regarding the possibilities of waste recovery or disposal;
- safety measures necessary when disposing of waste;
- chemical substances or products with which waste must not be mixed.

Latter exceeds the WAC Decision requirements.

- **Information to prove that the waste does not fall under the exclusions of Article 5(3) of the Landfill Directive is not requested, as wastes described in Article 5(3) of the Landfill Directive are not allowed at Latvian landfills according to § 34 chapter 4 of Regulation No. 474/2006.**

**The fundamental requirements of basic characterisation, except those for hazardous waste, are not implemented by Latvian legislation.**

According to § 40 and Annex 2 to Regulation No 474/2006 testing is not required for waste with an EWC code provided in Annex 2. Further, it does not have to be tested if the laboratory declares in written form that analyses or relevant test procedures are impossible. In this case the criteria are not valid.

An exclusion of testing, in case the necessary information for the basic characterisation is known and duly justified to the full satisfaction of the competent authorities, is not provided.

**A time for record keeping is not set.**

#### Compliance testing

Compliance testing is transposed into national legislation by § 37, 65.5 of Regulation No 474/2006.

According to § 63 of Regulation No 474/2006 inert waste not included in the list of Annex 6 to Regulation 474/2006 has to be chemically analysed to determine if it complies with the leaching values set in Annex 7 to the Regulation No 474/2006. **A time for record keeping is not set.**

According to § 59 of Regulation No 474/2006 waste to be disposed of at municipal waste landfills and is neither municipal waste nor stable, non-reactive hazardous waste, has to be chemically analysed to specify whether this waste complies with the corresponding leaching values as provided in Annex 5 to Regulation No 474/2006/2006. **A time for record keeping is not set.**

Compliance testing has to be performed once a year as stipulated by § 65.5 of the Regulation No 474/2006. Compliance testing for hazardous waste has to be performed as specified by the parties in the basic characterisation. **This is only relevant for hazardous waste and a time for record keeping is not set.**



According to § 64 of Regulation No 474/2006, only hazardous waste complying with the values set out in Annex 8 to Regulation No 474/2006 may be accepted.

#### On-site verification

On-site verification is implemented in the Latvian legislation by § 39, 41 and 42 of Regulation No 474/2006.

According to § 38 chapter 4 of Regulation No 474/2006, the operator shall check the waste visually before and after unloading. Further, he has to ensure that the waste complies with the basic characterisation.

§ 41 of Regulation No 474/2006 states that at landfills for hazardous waste, sampling shall be performed and the analyses thereof shall be carried out by laboratories. Samples of hazardous waste shall be stored for at least one month after sampling. The performance of the analyses shall be ensured during this period.

**Sampling and sample keeping others than for hazardous waste are not set.**

In § 42 of Regulation No 474/2006 it is regulated that waste which is determined as 'not disposable' at the foreseen landfill site, or "waste dump" shall be returned to the waste supplier. The landfill operator shall inform the relevant Regional Environment Board of the State Environmental Service.

#### 1.7.1.3 *Waste Acceptance Criteria*

It is not allowed by national legislation to accept higher limit values at landfills.

Criteria for monolithic waste are not set.

In accordance with § 39 of Regulation No 474/2006 sampling of waste, chemical analyses for the preparation of the basic characterisation and compliance testing shall be performed by the laboratories. The laboratories have to be accredited by the State agency "Latvian National Accreditation Bureau" in accordance with standard LVS EN ISO/IEC 17025: 2005 "General requirements for the competence of testing and calibration laboratories". The Ministry of Economics has published a notification in the newspaper *Latvijas Vēstnesis* [the official Gazette of the Government of Latvia]. The test methods are listed in Annex 2 of Regulation No 474/2006. The standards which are transposed into national legislation are:

LVS EN 13137:2005, LVS EN 12457-1:2005, LVS EN 12457-2:2005 LVS EN 12457-3:2005 LVS EN 12457-4:2005, LVS EN 13657:2005, LVS EN13656:2005, LVS EN 12506:2005, LVS EN 13370:2005.

**The following standards are missing: prEN 14346 (Calculation of dry matter by determination of residue or water content), prEN 14405 (Leaching behaviour test-Up flow percolation test, up-flow percolation test for inorganic constituents), prEN 14039 (Determination of hydrocarbon content in the range of C<sub>10</sub> to C<sub>40</sub> by gas chromatography).**

#### Criteria for waste acceptable at landfills for inert waste

Criteria for inert waste to be accepted at inert waste landfills are implemented by Chapter 4.3 and Annex 6 and 7 to Regulation No 474/2006.

Exception of the short list as defined in section 2.1.1. of the WAC Decision are laid down by § 61 of Regulation No 474/2006. Therefore, inert waste containing impurities in amounts that imply a risk of pollution shall not be disposed of at landfill sites for inert waste.

The short list for waste to be accepted without testing is literally implemented. It is divergent to the WAC Decision that the list only excludes compliance testing instead of testing in general. The footnote of the table shows some differences as follows:

In the WAC Decision two supplements are part of the footnote of the table for the short list which exclude C&D construction waste polluted with inorganic or organic substances or containing dangerous substances in significant amounts. These supplements are implemented by Latvian legislation by defining that inclusions may not exceed 15 % of the total waste. An additional footnote demands that waste which can be accepted without compliance testing has to be in accordance with Regulation No 985/2004.

In Annex 7 to Regulation No 474/2006 all three columns of the leaching limit values for inert waste to be disposed of at inert waste landfills are implemented, as well as the limit values for total content of organic parameters.

The PAH value is not set.

#### Criteria for non-hazardous waste acceptable at landfills for non-hazardous waste

Criteria for non-hazardous waste to be accepted at landfills for non-hazardous waste are implemented by Chapter 4.2 and Annex 5 to Regulation No 474/2006.

According to § 55 of Regulation No 474/2006 waste shall be accepted at municipal waste landfills without compliance testing for the corresponding limit values for non-hazardous waste specified in Annex 5 to Regulation No 474/2006. In addition, the following waste can be accepted at landfills for municipal waste:

- municipal waste generated in a household, except for those which may be classified as hazardous waste according to Regulation No 985/2004;
- separately collected municipal waste generated in a household, except for those which may be classified as hazardous waste in accordance with the Regulation No 985/2004, and
- similar municipal waste of other origin.

The table for the leaching limit values as well as the corresponding footnote has been literally transferred to Annex 5 to Regulation No 474/2006 but refers to municipal waste instead of non-hazardous waste.

According to § 56 of Regulation No 474/2006 municipal waste containing gypsum should be disposed of at landfills where no biodegradable waste is landfilled. Leaching limit values for TOC or DOC are not mentioned. As there are no subcategories for non-hazardous wastes, these levels have to be considered anyway for non-hazardous landfills. The only divergence to the WAC Decision is in the case of the disposal of gypsum waste in hazardous landfills for which higher TOC and DOC levels are possible.

### Criteria for hazardous waste acceptable at landfills for non-hazardous waste

Criteria for hazardous waste to be accepted at landfills for non-hazardous waste are implemented by Chapter 4.2 and Annex 5 to the Regulation No. 474/2006.

A definition for stable non-reactive as provided in Section 3 of the Annex to the WAC Decision is not provided by Latvian legislation.

The tables for the leaching limit values as well as the table for other criteria with the corresponding footnotes have been literally transferred to Annex 5 to Regulation No 474/2006, **except the need to measure the ANC.**

According to § 54.2 of Regulation No 474/2006 stable non-reactive hazardous waste shall be disposed of separately from biodegradable waste.

**Criteria for physical stability and bearing capacity of the waste as well as criteria to ensure that the hazardous waste is stable and non-reactive are not set.**

Criteria concerning asbestos waste are fully implemented by § 57 of Regulation No 474/2006. The possibility to reduce requirements set out in Annex I, point 3.2 and 3.3 of the Landfill Directive in case a landfill only receives construction material containing asbestos waste is not given.

In § 58 of Regulation No 474/2006 it is further stated that, the landfill operator shall visually check waste or packaging and labelling of packaged waste before accepting the waste and after its unloading at the landfill site, where only construction waste containing asbestos is disposed of in order to specify the compliance of the waste delivered with the description of the waste.

### Criteria for waste acceptable at landfills for hazardous waste

Criteria for hazardous waste to be accepted at landfills for hazardous waste are implemented by Chapter 4.4 and Annex 8 to Regulation No 474/2006.

The tables for the leaching limit values as well as the table for other criteria with the corresponding footnotes are identical and stipulated in Annex 5 to Regulation No 474/2006 **except the need to measure the ANC.**

According to § 66 of Regulation No 474/2006 chemical analyses of hazardous waste have to be performed in order to determine whether the waste complies with the corresponding limit values set out in Annex 8 to the same regulation.

### Underground storage

**Underground storage is not mentioned.**

## 1.7.2 Site visit

The organisation of the site visit has been realised in close cooperation with the Ministry of Environment of Latvia which organised the visit to the landfill site Daibe (non-hazardous waste landfill).

### 1.7.2.1 Site visit to representative non-hazardous waste landfill (Daibe, landfill class B)

#### General terms



Figure 1.7-1: Overview of the non-hazardous the separation station of Sevlievo. (Latvia)

The landfill site Daibe is a non-hazardous landfill site and was established in November 2004 by ZAAO, which is an organisation of the local government, established in 1998. It is planned that the landfill site will operate for at least 28 years. The total size of the landfill is 90 ha. It consists of an area for composting, a station for temporary storage, storage for hazardous waste (battery, WEEE, halogen lamp), a storage for tyres, an area with a waste sorting station and a waste water treatment plant. The active landfill site for disposal has an area of 3.16 ha and a capacity of 385,000 m<sup>3</sup>. This part will be used for another 2 to 3 years. A second landfilling area with a size of about 3.2 ha is already planned as well as a third one.

There are three main different waste types which can be disposed on this landfill site. This is household waste, construction waste and remainder from separated wastes. The annual amount of construction waste can vary tremendously. Anyway together with the household waste, the construction waste sum up to about 30,000 to 35,000 tonnes per year which is about 80 % of the landfilled waste. Approximately 10,000 tonnes are additionally landfilled which are left after separation. The landfill also contains two cells where asbestos wastes can be disposed of.

By the end of 2010 a separation station for unsorted waste shall be set in place to reduce the incoming household waste by 25-30 %. This shall be done by shredding, magnetic separation, sieving and gravity separation.

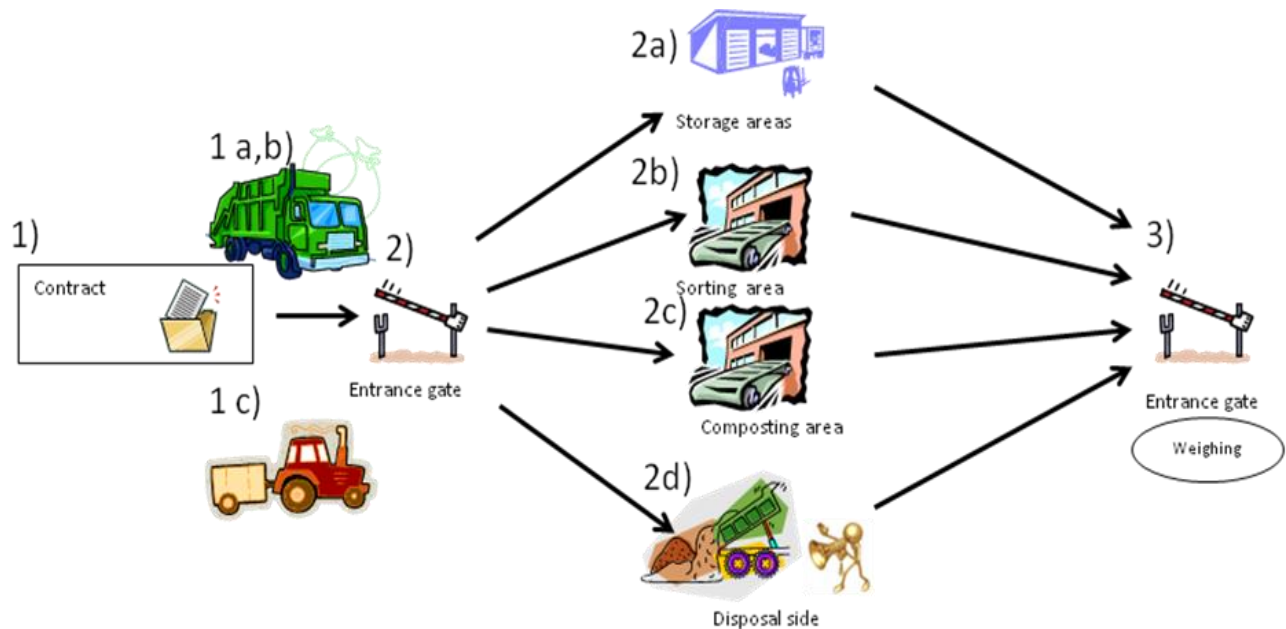
Other wastes as batteries, WEEE, halogen lamps, tyres, sludges from sewage water treatment plants or bulky waste are only stored at the landfill site or used as engineering material for the landfill site (crushed tyres for drainage system or composted material for coverings).

The waste transports to the landfill site are either from “ZAAO” Ltd collection system (75 %) waste collection companies having a contract with the landfill site (25 %) or private persons. The amount of waste from private persons sum up to less than 1 %.

The landfill site is equipped with a leachate collection system and a collecting basin with a waste water treatment plant. The landfill gas is collected and used for energy production. In the moment it has an electrical energy production of 175 kW, but it will further be extended to a capacity of 525 kW.

Waste which is deemed acceptable to be disposed of on the landfill site can be delivered to the site. For this purpose contracts are signed with waste collecting companies before the waste deliveries start. In case of private persons the formalities are done at their arrival.

### Waste acceptance procedure



**Figure 1.7-2: Flow chart of the waste acceptance procedure at Daibe (Latvia)**

Only companies which have a contract with the landfill site are allowed to bring the waste to the landfill site. The waste acceptance procedure at the landfill site is the following:

1. Waste which arrives at the landfill site can be accepted by three different procedures at the weighing bridge:
  - a. The lorry is from the own company and is equipped with a swift card, which is used at the entrance and exit of the landfill site. The data are automatically entered into the computer system.
  - b. The waste transporter is from a waste collector under contract and arrives for the first time. A filled in document “CSA poligons “Daibe”” is prepared which includes all necessary data (car registry number, waste type, company name, company address, waste volume, waste classification, date etc.). This document is signed by the driver and the weighing

bridge operator. The data are entered into the computer system. After the first visit verbal information via microphone is sufficient.

- c. The waste is brought by a private person. The private person has to go to the weighing bridge operator and a document is filled in, which includes among other information of the waste type, the price for this waste type, date, car register number, ID and name of the person.
2. Depending on the type of waste, the waste has to be transported to the different locations on the landfill site.
    - a. Special wastes as tyres or hazardous waste (batteries, WEEE, halogen lamps) are sent to the storing area and are regularly picked up by other companies for further treatment.
    - b. Waste from separated collection is sent to the sorting station for treatment. This includes sieving, magnetic separation, manual separation and bailing of the raw materials or disposal of the unusable material. The bailed raw materials are sold to other companies. This includes PET, paper, cardboard, plastic packaging and glass.
    - c. Sludges from sewage water treatment plants and also some material from catering companies are sent to the composting area for composting. The composted material is used as engineering material on the landfill site.
    - d. Household waste and construction waste is also sent to the side to be landfilled.
  3. On the way out the transporters are weighed again and the net weight is determined. A document is printed and stored as a hard copy at the landfill site and a copy is given to the driver. This paper is used for issuing the invoice.

The documents are kept without time limit at the landfill site as a hard copy as well as electronically.

The data in the computer systems are also used for the quarterly and annual report for the Environmental Agency.

#### Basic characterisation

For the type of waste which can be disposed of on this landfill site no basic characterisation is necessary.

#### Compliance testing

For the type of waste which can be disposed of on this landfill site no compliance testing is necessary.

#### On-site verification

On-site verification is performed at the weighing bridge with a CCTV. This is not possible in case of household waste and separated waste as these transportation systems are covered to all sites.

At the active landfill sites the employees distributing and compacting the waste inspects the waste again. In case of suspicion the operator is informed and actions are taken, on a case to case base depending on the discrepancy.

Expert proposals related to potential modifications of the WAC

There are no proposals for the WAC Decision.

## 1.8 Country Report Malta

The WAC Decision is only marginally implemented in the Maltese legislation.

All of the criteria which have to be set by the Member States have not been implemented. Furthermore the leaching limit values and the proper implementation of the basic characterisation as well as compliance testing have not been adopted.

In general it is considered by the Maltese ministry that all the criteria which have to be set by each Member state are fulfilled by their IPPC permits, which have to be compliant with the EU regulations.

The only essential acceptance criteria are the settings of national lists by the competent authorities. These lists shall include waste types to be accepted or refused at each class of landfill, or define the criteria required to be on the list. These lists or acceptance criteria should be used to establish site specific lists, i.e. the lists of accepted waste specified in the permit in accordance with § 11 of the Regulation 2002.

Some minor aspects are implemented but not exactly in a way as intended by the WAC Decision. For example the origin of the waste has to be recorded but is not defined to be part of the basic characterisation. All of these examples which have been found are discussed below.

The level three hierarchy 1) basic characterisation 2) compliance testing 3) on-site verification is literally transposed from the Landfill Directive.



### 1.8.1 Legal assessment

Table 1.8-1 provides an overview on the legal documents transposing the WAC Decision requirements into national legislation. Furthermore, the table shows a qualitative assessment of the level of implementation or possible divergences, which are further, explained and justified in the following sections.

Malta			
Category	Corresponding national legislation	Implementation	Comments
1. Procedure		—	
1.1 Basic Characterisation		~	Poorly implemented
1.1.1 Function		—	Not implemented
1.1.2 Fundamental requirements	§ 6, 8, 9, 14 and Section 2 and 3 of Schedule 2 to Regulation 2002	~	Only indirectly required (in permits) or completely missing
1.1.3 Testing		—	Not implemented
1.1.4. Cases where testing is not required		—	Not implemented
1.2 Compliance Testing	Section 3 of Schedule 2 to Regulation 2002	—	Hardly any implementation. Frequency, sample keeping of compliance testing and the minimum requirement of a batch leaching test are not set.
1.3 On-site verification	§ 14 and Schedule 3 to Regulation 2002	✓	
2. Acceptance Criteria	Section 3 of Schedule 2 to Regulation 2002	—	Not implemented
2.1 Landfills for inert waste	Section 3 of Schedule 2 to Regulation 2002	—	
2.1.1 Short list		—	Not implemented
2.1.2 Limit values		—	Not implemented
2.1.2.1 Leaching limit values		—	Not implemented
2.1.2.2 Limit values for total content of organic parameters		—	Not implemented
2.2 Landfills for non-hazardous waste	Section 3 of Schedule 2 to Regulation 2002	—	
2.2.1 Without testing		—	Not implemented
2.2.2 Limit values for non-hazardous waste		—	Not implemented
2.2.3 Gypsum waste		—	Not implemented
2.3 Criteria for hazardous waste acceptable at landfills for non-hazardous waste, Art 6 c iii		—	Not implemented
2.3.1 Leaching limit values		—	Not implemented

Malta			
Category	Corresponding national legislation	Implementation	Comments
2.3.2 Other criteria		—	Not implemented
2.3.3 Asbestos waste		—	Not implemented
2.4. Landfills for hazardous waste	Section 2 of Schedule 2 to Regulation 2002	—	
2.4.1 Leaching limit values		—	Not implemented
2.4.2 Other criteria		—	Not implemented
2.5 Criteria for underground storage		—	Not implemented

**Table 1.8-1: Implementation of WAC Decision requirements in Maltese Legislation**

### 1.8.1.1 *Legal framework*

The WAC Decision is implemented in the Maltese legislation by the following legislation

- Environmental Protection Act (Act No. XX of 2001) L.N. 168 of 2002, Waste Management (Landfill) Regulation, 2002; (hereinafter referred to Regulation 2002)

### 1.8.1.2 *Acceptance Procedure*

#### Basic Characterisation

Basic characterisation is partially implemented in the Maltese legislation in § 6, 8, 9, 14, Section 2 and 3 of Schedule 2 to Regulation 2002.

The basic characterisation is implemented as Level 1 of a three level hierarchy. It is described that the basic characterisation constitutes a thorough determination, according to standardised analysis and behaviour-testing methods, of the short and long-term leaching behaviour and/or characteristic properties of the waste.

The criteria for acceptance at a specific class of landfill must be derived from considerations pertaining protection of the

- environment,
- environmental protection system,
- desired waste –stabilisation processes within the landfill and
- against human health

Examples for waste property-based criteria are:

- requirements on knowledge of total composition,
- limitations on the amount of organic matter in the waste,
- requirements or limitations on the biodegradability of the organic waste components,
- limitations on the amount of specified potentially harmful/hazardous components (in relation to the above mentioned protection criteria).
- limitations on the potential and expected leachability or specified, potentially harmful/hazardous components ( in relation to the above mentioned protection criteria)
- ecotoxicological properties of the waste and the resulting leachate

The function and fundamental requirements for the basic characterisation, as set in the WAC Decision, are only poorly implemented in the Maltese regulation. They have to be known for the permit, but are not demanded for the basic characterisation.

The Sections of Article 5 (3) and Article 6 (a) are literally implemented, but it is not stated that they have to be considered for the fundamental requirements of basic characterisation. Also the description of the types and total quantity of waste to be deposited are mentioned, but only as a part of a permit and not as part of the basic characterisation.

According to § 14 of the Regulation 2001 only waste in compliance with the permit can be accepted at the landfill site. The landfill operator also has to check the waste documentation (required by the Waste Management [Permit and Control] and Environment Protection Regulation [Control of Transboundary Movement of Toxic and other Substances]).

The landfill operator has to keep a register of the qualities and characteristics of the waste deposited, indicating origin, date of delivery, identity of the waste producer or collector in the case of municipal waste and in the case of hazardous waste, the precise location on the site, and make this information available to the competent Authorities. Furthermore, he must provide a written receipt of each accepted waste on the site. The competent authorities have to be notified about every waste which has not been accepted at the landfill site.

The time for record keeping is not defined.

#### Compliance testing

Compliance testing is implemented in the Maltese legislation in Section 3 of Schedule 2 of Regulation 2002.

Compliance testing is implemented as Level 2 of a three level hierarchy. It is described that compliance testing constitutes periodical testing by simpler standardised analysis and behaviour-testing methods to determine whether a waste complies with permit conditions and/or specific reference criteria. The tests focus on key variables and behaviour identified by basic characterisation.

Frequency and time for record keeping are not defined.

#### On-site verification

On-site verification is implemented in the Maltese legislation in § 14 and Section 3 of Schedule 2 of Regulation 2002.

On-site verification is implemented as Level 3 of a three level hierarchy. It is described that on-site verification constitutes rapid check methods to confirm that a waste is the same as that which has been subjected to compliance testing and that which is described in the accompanying documents. It may merely consist of a visual inspection of a load of waste before and after unloading at the landfill site.

The waste shall be visually inspected at the entrance and at the point of disposal. If appropriate the conformity with the description, provided in the documentation submitted by the holder, has to be verified.

If applicable, samples shall be taken, analysed and checked for compliance with the basic characterisation. The samples shall be kept for one month.

#### 1.8.1.3 *Waste Acceptance Criteria*

The competent authority shall set national lists of waste to be accepted or refused at each class of landfill, or define the criteria required to be on the lists. In order to be accepted at a particular class of landfill, a type of waste must be on the relevant national list or fulfil criteria similar to those required to be on the list. These lists or acceptance criteria should be used to establish site specific lists, i.e. the list of accepted waste specified in the permit.

The criteria for acceptance of waste on the reference lists or at a class of landfill may be based on other legislation and/or on waste properties.

Only on-site verification is mandatory and basic characterisation and compliance testing applied to the extent possible. Waste to be accepted at a particular class of landfill must either be on a restrictive national or site-specific list for that class of landfill or fulfil criteria similar to those required to get on the list.

It is stated in the Maltese legislation, that sampling of waste may pose serious problems with respect to representation and techniques owing to the heterogeneous nature of many wastes. A European standard for sampling of waste will be developed. Until a European standard is approved, national standards and procedures may be applied.

The landfill classes are defined as set in the WAC Decision.

Monolithic waste is not mentioned.

#### *Criteria for inert waste acceptable at landfills for inert waste*

Criteria for inert waste acceptable at landfills for inert waste are implemented in the Maltese legislation by section 3 of Schedule 2 to the Regulation 2002.

Only inert waste can be accepted on the list for waste disposed on landfills for inert waste.

No leaching limit values have been adopted

#### *Criteria for non-hazardous waste acceptable at landfills for non-hazardous waste*

Criteria for non-hazardous waste acceptable at landfills for non-hazardous waste are implemented in the Maltese legislation by section 3 of Schedule 2 to the Regulation 2002.

In order to be accepted on a list for waste to be disposed on a landfill for non-hazardous waste, the waste type must not be hazardous waste.

No leaching limit values have been adopted

Gypsum and asbestos waste are not implemented in the Maltese legislation.

Criteria for waste acceptable at landfills for hazardous waste

Criteria for hazardous waste acceptable at landfills for hazardous waste are implemented in the Maltese legislation by section 3 of Schedule 2 to the Regulation 2002.

No leaching limit values have been adopted. A preliminary rough list for hazardous waste landfills would consist of only those wastes which are hazardous. Such waste types should however not be accepted on the list without prior treatment, if they exhibit total contents or leachability of potentially hazardous components that are high enough to constitute a short term occupational or environmental risk or prevent sufficient waste stabilisation within the projected lifetime of the landfill.

Criteria for waste for Underground storage

Criteria for waste acceptable at underground storage systems are not implemented in the Maltese legislation.

## 1.8.2 Site visit in Malta

The organisation of the landfill visit has been realised in close cooperation with the EU and Multilateral Affairs Unit, which supported the organisation of the visit at WasteServ Malta.

### 1.8.2.1 Site visit to representative non-hazardous waste landfill WasteServ Malta (Ghalis, landfill class B)

#### General terms



**Figure 1.8-1: Disposal area of landfill site WasteServ Malta (Malta)**

The landfill site of Malta is located about 9 km northwest from Valletta and is operated by WasteServ Malta. It is part of the Maltese government and started operation in November 2002. At the moment it is the only active landfill site on the island of Malta and Gozo. The site consists of three disposal sites. The first two of them have already been closed because they do not comply with the EC requirements set by the Landfill Directive. One of these disposal sites is equipped with a landfill gas collection system and a flare for the thermal incineration of the collected gas. The collected gas does not have the required quality to be used for power production. The landfill gas collection system and power production from the other closed disposal site is expected to start operation soon.

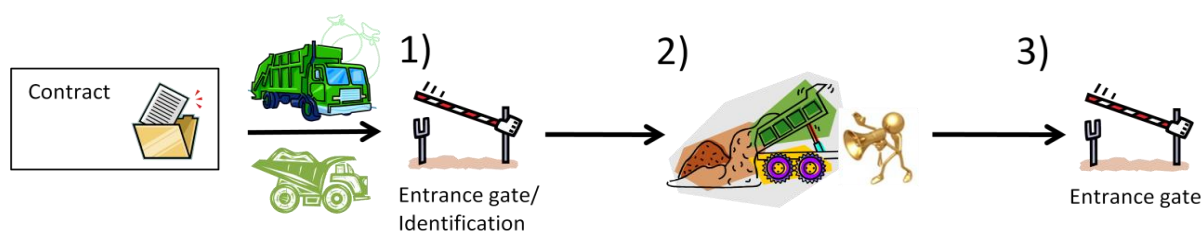
The third landfill site fulfils the requirements of the Landfill Directive and started operation in 2007. Originally it was planned that the landfill site will continue operation until 2014. However, due to the installation of different MBTs it is expected that the duration will be much longer and will probably continue operating at least until 2019. The disposal site has a capacity of about 1,700,000 tones and the annually disposed of waste is about 280,000 t. The waste which is disposed of at the landfill site consists to 94 % of household waste. The remaining 6 % is a combination of different non-hazardous waste types. About 250 waste deliveries are handled daily. The active part for disposal has a size of about 50 m x 50 m.

During the disposal of the waste at this landfill, excavation works are ongoing to expand the area for disposal. The debris from the excavation is used as engineering material on the landfill site, daily cover of the waste and as construction material outside of the landfill site. Leachate from the landfill site is recalcitrated in the landfill body.

On the landfill site there is also a storage area for wood and cardboard which can be sold again.

Further, current plans are to expand the landfill site with a disposal area for hazardous waste, to establish a hazardous waste treatment plant and a MBT for non-hazardous waste.

### Waste acceptance procedure



**Figure 1.8-2: Flow chart of the waste acceptance procedure at WasteServ Malta (Malta)**

There are two different waste types which can arrive at the landfill site: One is household waste and the other is non-hazardous waste which can again be split into mixed waste and single stream waste. The waste acceptance procedure at the landfill site is the following:

1. The lorry arrives at the weighing bridge and the vehicle registration number is entered into the computer system. In case the lorry has no licence for waste transport, this appears on the computer screen. In case of non-hazardous waste, other than MSW, a waste transfer document is handed over to the weighing bridge operator. Due to a camera, showing the top of the lorry, the weighing bridge operator has the possibility to visually inspect the load of the transport. This is only possible if the lorry is not closed on top as is the case for all MSW transports. After weighing, a document is printed including the gross weight of the lorry. The weighing bridge document is given to the driver. The document includes among others the relevant EWC codes, source, vehicle registration number, the driver's signature and location of disposal.
2. The waste is transported to the active tip face and the weighing bridge document is given to an employee of WasteServ Malta controlling the waste disposal activity. In case of suspicion, the waste manager is informed and it is decided on a case to case bases how to proceed. This can include a change in the disposal price or a reloading of the waste onto the lorry. The latter is the case when the delivered waste cannot be accepted. If a sample for on-site verification shall be taken due to suspicion, the waste is sent back, until the test results are available. The costs for the analyses are carried by WasteServ Malta.



3. After disposal, the driver moves back to the weighing bridge. He gives back the weighing document and a second weighing is performed. A new weighing bridge document including the net weight of the waste is printed. One copy is kept at the landfill site and one is given to the driver.

All documents are kept without time limit either as hard copy as well as in the computer system.

#### Basic characterisation

All waste collecting companies delivering their waste to the landfill site must have a permit from the national authority and each lorry has a licence for waste transport. The above mentioned 6 % of non-hazardous waste which are produced by different companies have to be announced prior to delivery by the companies to WasteServ Malta. WasteServ Malta asks for a MSDS of the waste to be forwarded to them and offers support to the companies to establish a proper document for the waste characterisation. This support also includes proper sample taking and contact to laboratories. For the document a sample is sent to a laboratory and a full check of the leaching behaviour is performed by the private laboratory. All necessary data as stated by the WAC Decision are entered into a report which serves as the basic characterisation. Once the basic characterisation is deemed acceptable, a contract is drawn up and a waste transport document is filled in by WasteServ Malta and is sent to the waste producer. For each delivery the driver has to show the waste transport document to the weighing bridge operator.

#### Compliance testing

Once the basic characterisation has been developed, employees of WasteServ Malta erect a plan including key parameters of the waste and the frequency for compliance testing.

#### On-site verification

On-site verification is done with cameras at the entrance gate as well as at the disposal site by an employee of WasteServ Malta. The waste is compared with the information on the waste transport note or the weighing bridge document, respectively.

#### Expert proposals related to potential modifications of the WAC

There are no proposals for the WAC Decision

## 1.9 Country Report Poland

The WAC Decision is in general well implemented in the Polish legislation, but some divergences could be observed:

- Higher limit values can be accepted at landfills for inert, non-hazardous and hazardous waste if the leachate water is collected and treated in a sewage treatment plant;
- Waste can be accepted at landfills for inert waste without testing, although it is not explicitly limited for single waste streams as stated in the WAC Decision;
- The required additional precautions for asbestos waste are not fully implemented;
- MSW also has to meet limit values for TOC, LOI, and H<sub>0</sub>.

### 1.9.1 Legal assessment

Table 1.9-1 provides an overview on the legal documents transposing the WAC Decision requirements into national legislation. Furthermore the table shows a qualitative assessment of the level of implementation or possible divergences which are further explained and justified in the following sections.

Poland			
Category	Corresponding national legislation	Implementation	Comments
1. Procedure		✓	
1.1 Basic Characterisation	§ 3 to 5 of Regulation 2005	✓	
1.1.1 Function	§ 3 to 5 of Regulation 2005	✓	
1.1.2 Fundamental requirements	§ 3 of Regulation 2005	✓	
1.1.3 Testing	§ 4 to 6 of Regulation 2005	✓	
1.1.4. Cases where testing is not required	§ 4.2 of Regulation 2005	✓	
1.2 Compliance Testing	§ 7 of Regulation 2005	✓	
1.3 On-site verification	§ 8 of Regulation 2005	✓	
2. Acceptance Criteria	---	~	No general acceptances of higher limit values are set.
2.1 Landfills for inert waste		~	
2.1.1 Short list	§ 4.2 of Regulation 2005	~	Restrictions for waste that can be accepted without testing are incomplete (limitation for single waste streams is not mentioned)
2.1.2 Limit values		~	
2.1.2.1 Leaching limit values	§ 10 (1)a) and Annex 3 to Regulation 2005	~	Difference concerning the footnote of the table
2.1.2.2 Limit values for total content of organic parameters	§ 10 (1)a) and Annex 3 to Regulation 2005	✓	
2.2 Landfills for non-hazardous waste		+	
2.2.1 Without testing	§ 10 (1)c) and Annex 4 to Regulation 2005	+	MSW has to fulfil set limit values (TOC, LOI, H <sub>0</sub> )
2.2.2 Limit values for non-hazardous waste	§ 10 (1)c) and Annex 4 to Regulation 2005	✓	
2.2.3 Gypsum waste	Annex 4 (4) to Regulation 2005	+	Gypsum waste is only allowed on landfills for non-hazardous waste if the set limit values of DOC and TOC (identical to the WAC Decision) are fulfilled.
2.3 Criteria for hazardous waste acceptable at landfills for non-hazardous waste, Art 6 c iii		~	

Poland			
Category	Corresponding national legislation	Implementation	Comments
2.3.1 Leaching limit values	§ 10 (1)d) and Annex 5 to Regulation 2005	~	Difference concerning the footnote of the table
2.3.2 Other criteria	Annex 4a to Regulation 2005	✓	
2.3.3 Asbestos waste	§ 19 of Regulation 2003	~	The requirement of keeping a plan of the location where asbestos wastes have been deposited is not mentioned
2.4. Landfills for hazardous waste		✓	
2.4.1 Leaching limit values	§ 10 (1)a) and Annex 2 to Regulation 2005	~	Difference concerning the footnote of the table
2.4.2 Other criteria	Annex 5 to Regulation 2005	✓	
2.5 Criteria for underground storage	§ 11 (1) and Annex 2-4 to Regulation 2007	✓	

**Table 1.9-1: Implementation of WAC Decision requirements in Polish Legislation**

### 1.9.1.1 *Legal framework*

The WAC Decision is mainly implemented in the Polish legislation by:

- Regulation of the Minister of Economy of 7<sup>th</sup> September 2005 on **criteria and procedures for the acceptance of waste to landfilling at each class of landfills** (J. of L. No. 186, item 1553, with later amendments) (hereinafter referred to Regulation 2005)
- Regulation of the Minister of Environment of 22<sup>nd</sup> August 2007 on **criteria and procedures for the acceptance of waste to underground storage** ( J. of L. No. 163, item 1156) (hereinafter referred to Regulation 2007)
- Regulation of the Minister of Environment of 24<sup>th</sup> March 2003 on the **detailed requirements concerning the localisation, construction, operation and closure of particular types of landfills** (J. of L. No. 61, item 549, with water amendments) (hereinafter referred to Regulation 2003) and amendments.
- Regulation of the Minister of Environment of 16<sup>th</sup> June 2005 on **underground landfills** (herein after referred to Underground Regulation 2005)
- Regulation of the minister of Economy of 22<sup>nd</sup> August 2007 on the **criteria and procedure for placing waste in underground storage** (hereinafter referred to Underground Regulation 2007)

Further regulations which are referred to are:

- Regulation of the Minister of Economy of 27<sup>th</sup> April 2001 (J. of L. No. 62, item, 628)
- Regulation of the Minister of Economy of 27<sup>th</sup> September 2001 (J. of L. No. 112, item, 1206)
- Regulation of the Minister of Economy of 13<sup>th</sup> May 2004 (J. of L. No. 128, item, 1347)
- Regulation of the Minister of Economy of 11<sup>th</sup> January 2001 (J. of L. No. 11, item 84)

Amendments of the Regulations are included in:

- Regulation of the Ministry of Economy of 26 February 2009 amendment of the detailed requirements concerning the localisation, construction, operation and closure of particular types of landfills (J. of L. No 39, item 320).
- Act of 22<sup>nd</sup> January 2010 (J. of L. No 28. Item 145) amendment of Regulation of the Minister of Economy of 27<sup>th</sup> April 2001 (J. of L. No. 62, item, 628)

The landfill classes are implemented as follows:

- Inert waste landfill
- Non-hazardous waste landfill

- Non-hazardous waste landfills accepting stable non-reactive hazardous waste
- Municipal solid waste landfills
- Hazardous waste landfill

#### 1.9.1.2 *Acceptance Procedure*

##### Basic Characterisation

The basic characterisation is implemented by § 3 to 5 of Regulation 2005.

The landfill operator has to keep the records from the basic characterisation, until the closure of the landfill. After the closing, the records are given over to the owner or administrator.

The function as well as the fundamental requirements of basic characterisation are correspondingly implemented in § 3 to 6 of Regulation 2005.

##### Compliance testing

Compliance testing is implemented by § 7 of Regulation 2005.

Compliance testing has to include a batch leaching test and other, for this waste type, chosen parameter. The frequency is at least every 12 month or more often depending on the results from the basic characterisation.

Waste that is exempted from testing requirements is also exempted from compliance testing. This also includes waste for which all information, for the basic characterisation is known and duly justified to the full satisfaction of the competent authority.

The landfill operator has to keep the records from the compliance testing until the closure of the landfill. After the closing the records are given over to the owner or administrator.

##### On-site verification

On-site verification is fully implemented by § 8 of Regulation 2005.

The waste has to be visually inspected before and after unloading and also includes a document check according to § 8 (1) 2 of the Regulation 2005.

Periodic sampling has to be done at least once a month and the samples shall be kept for one month.

#### 1.9.1.3 *Waste Acceptance Criteria*

Higher limit values to be accepted for the different landfill classes by the corresponding authorities is not provided in the Polish legislation. In case the landfilled is connected and equipped with a sewage treatment plant higher limit values than those provided for the corresponding landfill classes can be exceeded.

In the Polish legislation the test methods  $L/S = 2$  l/kg and  $L/S = 10$  l/kg for the leaching limit values for all landfills are defined.

For the standards for waste to be disposed in above ground landfills, testing and sampling, it is referred to the WAC Decision and to the Regulation of the Minister of Economy of 11<sup>th</sup> January 2001 (J. of L. No. 11, item 84).

For the standards for waste to be disposed in underground storage systems, testing and sampling, it is referred to the WAC Decision and to the Regulation of the Minister of Economy of 30<sup>th</sup> August 2002 (J. of L. No. 204, item 2087).

In the Polish legislation it is stated, that limit values for monolithic waste to be disposed of at a corresponding landfill site have to be determined in the basic characterisation.

#### Criteria for waste acceptable at landfills for inert waste

Criteria for waste acceptable at landfills for inert waste have been implemented correspondingly by Annex 1 and 3 to the Regulation 2005.

The short list for waste which can be accepted without testing has been implemented correspondingly. **It is not implemented that the waste which is exempted from testing has to be a single stream(only one source) of a single waste type and that different wastes contained in the list may be accepted together, provided they are from the same source.**

The full set of the leaching limit values as well as the total content of organic parameters have been implemented. The footnote under the table for the leaching limit values for waste to be accepted at landfills for inert waste does not include the footnotes concerning higher values for sulphate and DOC as stated in the WAC Decision but includes the footnote concerning TDS. An additional footnote accepts higher limit values (except for DOC and TDS) in case the leachate is collected and channelled to a sewage treatment plant. A maximum exceedance value is not given. The ministry of Poland has pointed out that the regulation has passed a technical notification of the European Commission. This means the European Commission is aware of this procedure and it has not been considered as an unacceptable measure.

The PAH value is set at a PAH value of 1 mg/kg DS (L/S is not known).

In case gypsum waste fulfils the leaching values of Annex 3 to the Regulation 2005 it can also be disposed on landfills for inert waste.

#### Criteria for non-hazardous waste acceptable at landfills for non-hazardous waste

Criteria for waste acceptable at landfills for non-hazardous waste have been implemented correspondingly by § 10 and Annex 4 to the Regulation 2005.

There is no waste type specified which can be accepted at non-hazardous landfills without testing.

According to Annex 4a to Regulation 2005 waste with the EWC 190805, 190812, 190814, 191212 and from the group 20 have a separated list of limit values which have to be met:

- TOC 5 % dry substance
- LOI 8 % dry substance
- H<sub>0</sub> 6 MJ/kg dry substance

The leaching limit values are identical as set in the WAC Decision. The footnote concerning the possible exceedance of the DOC value is not implemented. An additional footnote accepts higher limit values (except for DOC and TDS) in case the leakage is collected and channelled to a sewage treatment plant. A maximum exceedance value is not given.

The disposal of gypsum waste is only acceptable in landfills other than for inert or hazardous waste and has to fulfil the limit values of DOC and TOC listed in the tables (leaching limit values and other criteria) for landfills for non-hazardous waste. In case the gypsum waste fulfils the requirements of Appendix 3 to Regulation 2005 it can also be disposed on landfills for inert waste.

#### Criteria for hazardous waste acceptable at landfills for non-hazardous waste

Criteria for waste acceptable at landfills for stable non-reactive hazardous waste have been implemented correspondingly by § 10 and Annex 5 to the Regulation 2005.

Stable and non-reactive is defined, that the leaching value will be constant in a long time range and in case of foreseeable accidents and interactions with other substances and by products of the landfill.

The limit values in the Polish legislation are identical to the one set in the WAC Decision. The footnote concerning the possible exceedance of the DOC value is not implemented. An additional footnote accepts higher limit values (except for DOC and TDS) in case the leakage is collected and channelled to a sewage treatment plant. A maximum exceedance value is not given.

The limit values for other criteria are the same as given in the WAC Decision. The ANC has to be evaluated and additional limit values concerning the physical capacity and bearing capacity are also set as:

- Shear strength 25 kN/m<sup>2</sup>
- Axial deformation 20 %
- Uniaxial compression strength (crushing) 50 kN/m<sup>2</sup>

Criteria for asbestos waste are implemented by § 19 of Regulation 2003. It is stated that the incoming asbestos waste has to be packed and that it shall be disposed in a packed state. **Therefore sprinkling in case the waste is not packed is not mentioned. A plan indicating the location where asbestos wastes have been deposited on the landfill, which has to be kept after closure, is not directly implemented.** However three Articles include the topic.

- Article 54 e) of the Act of 22<sup>nd</sup> January 2010 includes that the chief inspectorate has to keep the information of active and closed landfills highlighting asbestos waste. The information includes, in periodic reports, data about amount and type of accepted asbestos waste.



- Article 19. Section 5) 6) of Regulation 2003 requires that asbestos waste shall only be disposed in a single cell merely prepared for asbestos waste.
- According to Article 52 of Regulation of the Minister of Economy of 27th April 2001 a list of waste which can be accepted at the landfill site has to be provided for the permit.

As a result from the information received from these three articles, it is known how much asbestos waste is disposed at a landfill and the according cell where asbestos waste is acceptable. A plan highlighting the location of the cell on the landfill site is not required.

A guideline for asbestos waste “The removal of asbestos products” is available under:

<http://www.dobron.ug.gov.pl/pliki/strategie/20080716programazbest.pdf>

#### Criteria for waste acceptable at landfills for hazardous waste

Criteria for waste acceptable at landfills for stable non-reactive hazardous waste have been implemented correspondingly by § 10 and Annex 5 to the Regulation 2005.

The leaching limit values in the Polish legislation are identical to the one set in the WAC Decision, but the footnote concerning the possible exceedance of the DOC value is not implemented. An additional footnote accepts higher limit values (except for DOC and TDS) in case the leakage is collected and channelled to a sewage treatment plant. A maximum exceedance value is not given.

The limit values for other criteria are identical to the WAC Decision and the ANC has to be evaluated.

#### Underground storage

Criteria for underground storage systems are implemented by § 11 and Annex 2, 3 and 4 to the Regulation 2007. Each type of underground storage system (inert, non-hazardous and hazardous) has a set of leaching limit values which are identical to the corresponding above ground landfills.

In case of inert and the hazardous underground storage systems a footnote is included to accept higher limit values as described in the above ground landfills. The changed footnote accepts up to three times higher limit values (except for DOC) than provided in the corresponding table.

The additional other (organic) contents which are listed for the above ground landfills are also valid for the corresponding underground storage systems including the special requirements given for gypsum waste.

Some waste types listed in Annex 1 are excluded from testing. (This includes EWC: 10 11 03, 15 01 07, 17 01 01, 17 01 02, 17 01 03, 17 01 07, 17 02 02, 19 12 05 and 20 01 02)

The need for different risks assessments to prove the stability and safety of the underground storage systems is implemented in § 2.1 and § 11 of the Underground Regulation 2005. This includes among others increased tectonic activities, increased seismic activities, mass movements or water intake. A higher probability for flooding should not occur within 500 years and erosion and denudation should not have a negative impact within 10,000 years.

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According to § 4.2 the geological barrier shall be sufficient to effectively isolate the waste from the environment and limit migration of hazardous substances. According to § 7 waste has to be prepared for storage or shall be stored in such a way that migration of hazardous substances is limited.

### 1.9.2 Site visits

The organisation of the site visit has been realised in close cooperation with the Ministry of Environment of Poland which organised the visits to the landfill sites Orlen Eko Sp. z o. o. (hazardous waste landfill), Zakład Usług Komunalnych Uskom Sp. z o.o (non-hazardous landfill) and „Eko Dolina” Sp. z o.o. Łężyce (non hazardous and hazardous landfill).

#### 1.9.2.1 Site visit to representative hazardous waste landfill (Orlen Eko Sp. z. o. o., landfill class C)

##### General terms



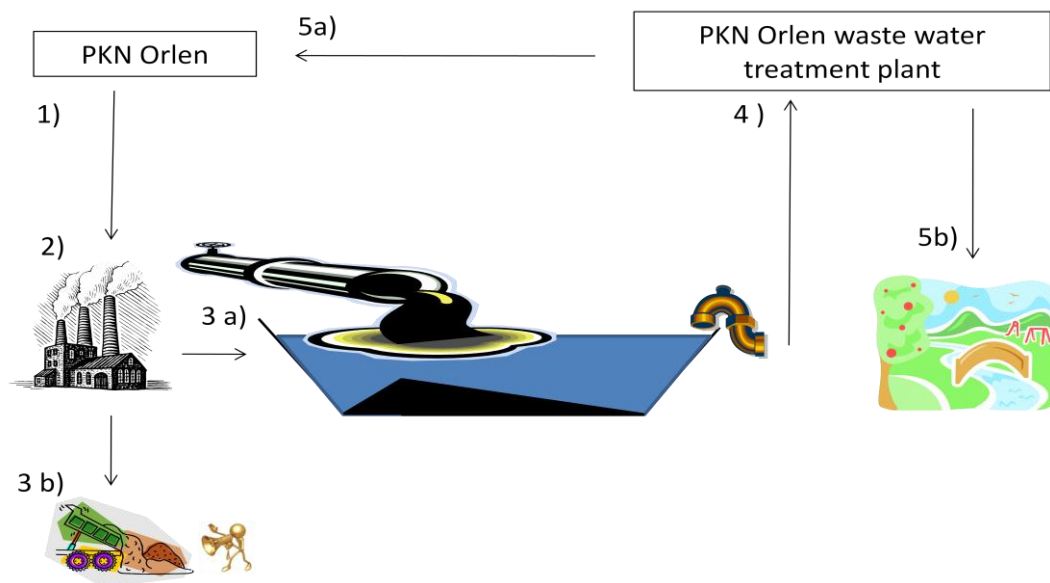
**Figure 1.9-1: Landfill cell of Oleaon Eko Sp.z.o.o. (Poland)**

The landfill site of the chemical park PKN Orlen was established in 1997. In 2004 the 100 % subsidiary of PKN Orlen was created and called Orlen Eko Sp. z. o. o. The landfill site consists of six landfill cells. Two of these cells are used for the waste from the gas scrubber of the incineration plant. The capacity is sufficient to continue its operation for the following 10 years. All other landfill cells which are much larger are filled with the ashes of the incineration plant. One of the cells has been closed in 2008. Another landfill cell will continue operation for another 10 years and two others can be activated to continue for another 20 years. Therefore the disposal for the ashes is possible for another 30 years and the disposal of the waste from the gas scrubber only for another 10 years. It is expected that at a given time new cells for this type of waste will be provided.

About 99.8 % of the waste consist of the ashes from the incineration plant and is transported from the incineration plant to the landfill site by mixing the ash with water and transport the solution in a pipe system to the landfill cells. The rest (0.2 %) is the waste from the gas scrubber. This waste is

transformed in a treatment step to a solid form and then stored in containers. After the containers are filled, it is transported with a lorry to the corresponding landfill cells and is disposed there.

### Waste acceptance procedure



**Figure 1.9-2: Flow chart of the waste acceptance procedure at Orlen Eko (Poland)**

At PKN several waste water streams arise which have to be treated. The waste treatment procedure at the landfill site is the following:

1. Sewage is sent from PKN Orlen to the incineration plant.
2. At the incineration plant three types of waste are generated: The biological fraction (40 % of the overall waste), the heavy oil fraction (10 % of the overall waste) and the light oil fraction (50 % of the overall waste fraction.). Each of these fractions has a different content of dry matter: Biological fraction about 28 %, light oil fraction 25-30 %, and the heavy oil fraction 15 %. All together the incineration plant has a capacity of about 50,000 t. The sewage has an average dry mass of 28 % and after the incineration of the dry mass the remaining ash has a weight of about 30 % of the dry mass. The remaining waste which has to be landfill represents therefore about 5,000 tonnes. From this maximum capacity the incineration plant is used only to 50 %. The purpose is that the majority of the wastes of the production lines of the chemical park Orlen end up in this treatment plant. In case the incineration plant reaches its capacity, all processes are involved. For this purpose the incineration plant is built in two parallel lines each capable of handling the whole amount of sewage.
3. There are two ways the waste is transported to the landfill cells.

- a) The ash is mixed with water and transported from the incineration plant to the landfill site by a piping system permanently flowing into the landfill cell. The ash gravitates to the ground. The excess water is transported via an overfall and a piping system to the sewage treatment plant. At the landfill site the solid phase settles to the ground due to gravity.
  - b) Another waste is gained from the gas scrubber. After some treatment the cake is gathered in a container and transported by a lorry to the landfill site where it is disposed into the landfill site.
4. The overflowing water is transported back to the sewage treatment plant.
  5. Cleaned water is send either to:
    - a) PKN Orlen for internal use, or
    - b) Is channelled into a river.

The information of the computer systems are kept for at least 30 years after the aftercare phase has ended.

#### Basic characterisation

A basic characterisation of the ashes and the gas scrubber is established. The information are kept till the aftercare phase and kept as hardcopy. These analyses are equipped with a hologram which serves as a copy protection.

#### Compliance testing

In regularly time intervals, but at least once a year, the wastes streams are analysed. For this purpose the document "Sprawozdanie z Badan" is prepared. It includes among others, information of the waste producer, date of sample taking, date of start and end of analyses, chemical analysing results and the signatures of the technical and environmental director.

#### On-site verification

The material which is incinerated is regularly sampled and the samples are kept for at least one month.

#### Expert proposals related to potential modifications of the WAC

There are no proposals for the WAC Decision.

1.9.2.2 *Site visit to representative non-hazardous waste landfill (Mława, Zakład Usług Komunalnych USKOM Sp. z o.o., landfill class B)*

General terms

The landfill site of Mława was first used as a gravel mine and in 1965 it was used as an illegal dumping site. Over the years the landfill site was more and more developed and since July 2009 the landfill is in operation as described. The landfill site contains a MBT, in which about 300,000 tonnes of waste are treated each year. The MBT consists mainly of sieves with two different sizes. The incoming waste (EWC 20 03 01) is separated into a coarse fraction (about 30 % with a EWC code 19 12 10), which is sent outside of the landfill site for further treatment. Before the second sieving takes place, metal is separated with a magnet separator. After the second sieving with a 15 mm sieve, a fine fraction (about 10 % with a EWC code 19 12 09) and a middle fraction is received. The fine fraction is landfilled at the moment, but in the future shall be used as construction material.

The middle fraction which is about 60 % of the separated waste (EWC code 19 12 12) contains a high content of water and has to be dried before it can be sold to a cement plant for incineration. During the drying process the weight loss of the waste is about 20 %.

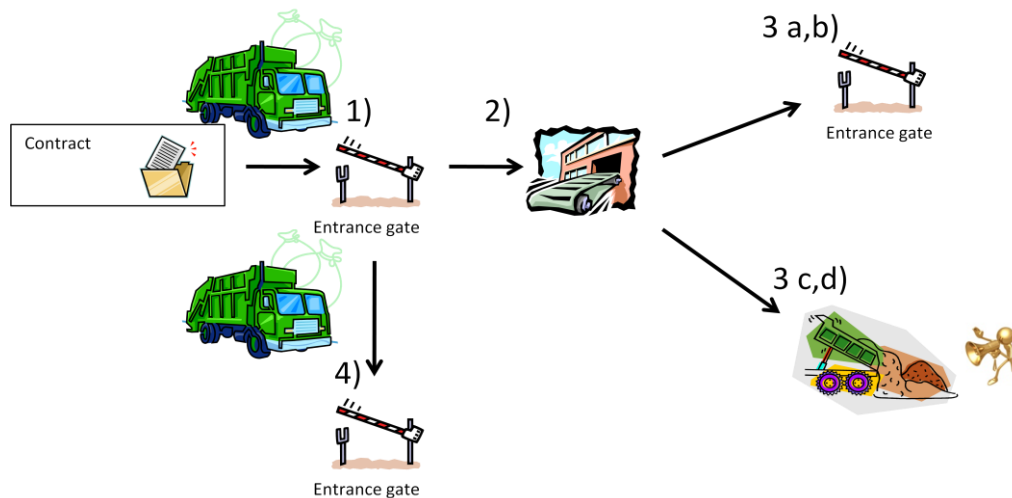
Waste which can be delivered to the landfill site is either construction waste or household waste.

Waste which cannot be treated in the MBT due to capacity shortage or waste which is too wet is bailed and landfilled. Within one year about 700,000 tonnes can be accepted.

The landfill site is also equipped with a landfill gas collection system with a power production of about 2.3 MW of electric power. The energy of the hot fume is converted into hot steam and about 1.2 MW are sold to a nearby food facility.

The landfill site consists of different landfill cells. The old landfill cell with about 3 ha is already closed and a second with a size of 5 ha is about to be closed. The old landfill site is not sealed at the bottom but is sealed to the top and is regularly monitored at different groundwater inspection places. A newer landfill site which is 15 m deep will continue operating for two more years and a new landfill cell with 5 ha will be prepared.

The waste is delivered by 14 collection companies of which 12 transport the waste from Warszawa. Two further collecting companies gather the waste from surrounding municipalities and a part of the delivered waste is collected by the landfill site itself. Apart from these companies with a long-time contract, there are consistently companies with short time contracts to deliver their waste at the landfill site.

Waste acceptance procedure

**Figure -3: Flow chart of the waste acceptance procedure at Zakład Usług Komunalnych USKOM Sp. z o.o. (Poland)**

In case a company has proclaimed to send their waste a contract is signed. If a basic characterisation is needed according to the EWC code, the basic characterisation is checked. The Polish legislation includes, that MSW has to meet limit values for TOC, LOI, and  $H_0$ .

**1. The acceptance of waste follows the following procedure:**

The waste driver carries a waste delivery notification “Karta Przekazania Odpadu” which includes among others data about waste amount, waste type, waste deliverer and destination. The document is signed by the weighing bridge operator and the driver. The data are entered into the computer system and the weight is measured.

The data in the computer systems are used for different legal documents and reports, and to give an overview of different categories of waste producer, waste type and for issuing invoices. The information is also forwarded to the Marshall.

Small amounts (< 1 %) of waste are delivered by private people. In this case, the information is recorded, the weight is measured and the payment is performed when leaving the landfill site.

- 2.** The incoming waste is send to the MBT. At the MBT the waste is separated into different fractions.
- 3.** After the MBT the following uses are possible:
  - a)The coarse fraction is send outside for further treatment
  - b)The middle fraction is dried and sold

c)The fine fraction is landfilled

d)Excess waste or very humid waste is bailed and landfilled

4. The emptied waste collector is measured again at the weighing bridge and the net weight is received.

The information of the computer systems are kept for at least 30 years after the aftercare phase.

#### Basic characterisation

In general all the waste which is delivered to the landfill site is household waste or construction waste (EWC code 17 01 01) and would not require a basic characterisation according to the WAC Decision. Unfortunately the Polish legislation includes limit values of TOC LOI and H<sub>0</sub> of MSW.

#### Compliance testing

According to the basic characterisation, compliance testing is performed at least once a year.

#### On-site verification

A visual on-site verification of the waste at the weighing bridge cannot be performed because the majority of the incoming loads are closed to all sides. The weighing bridge operator checks the documents and enters the data in to the computer system.

At the MBT the waste is unloaded and moved onto a conveyor belt. During this process the on-site verification takes place by the employees of the landfill site.

#### Expert proposals related to potential modifications of the WAC

There are no proposals for the WAC Decision.



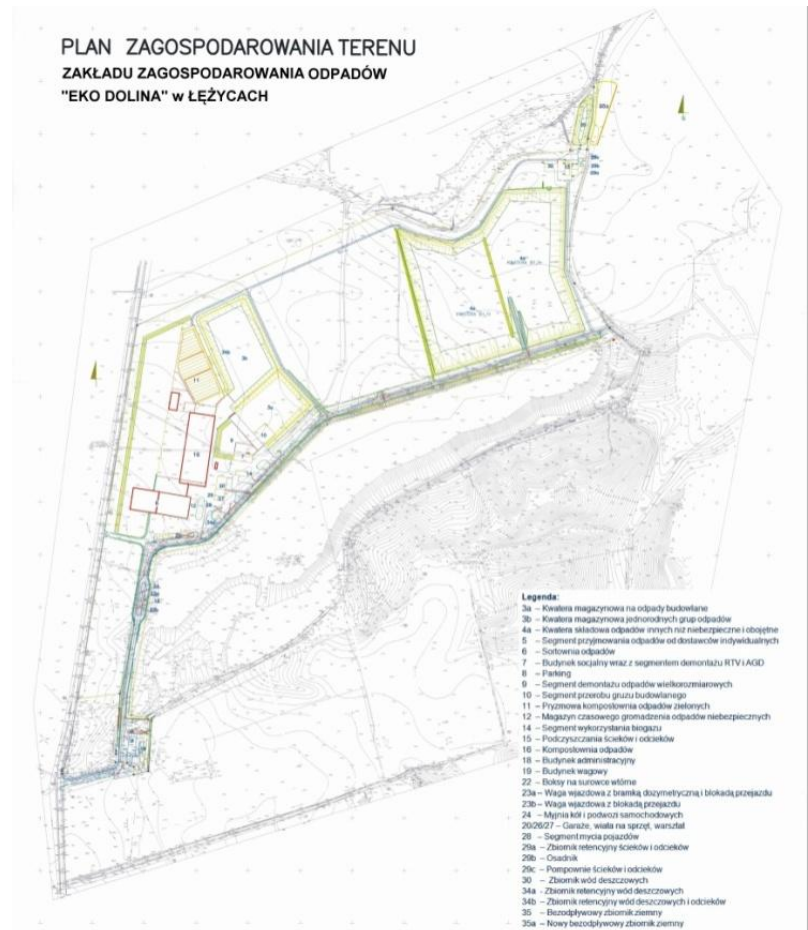
### 1.9.3 *Site visit to representative non-hazardous waste landfill (Eko Dolina, landfill class B)*

#### General terms

The history of Eko Dolina starts in 1991 with the establishment of a Community Union, which is an association of 7 Municipalities including about 400,000 people. The facility, including the landfill site started operation in 2005. The Eko Dolina project takes place in three phases. The first phase was from 1998 till 2005, the second from 2008 till 2010 and the third phase will be from 2011 till 2013. All three phases are planned and carried out to increase the recovery of waste from 30 % to 50 % and finally 70 %. The overall area of the whole plant covers about 106 ha.

The costumers of Eko Dolina are companies, mainly these which transport waste, institutions and individual clients. The companies delivering mixed waste, hazardous waste, electric and electronic waste and selected wastes have a contract with Eko Dolina. For each institution exists a separate procedure which describes the proceeding in accordance to their waste. Individual clients pay at the exit depending on the waste type and amount.

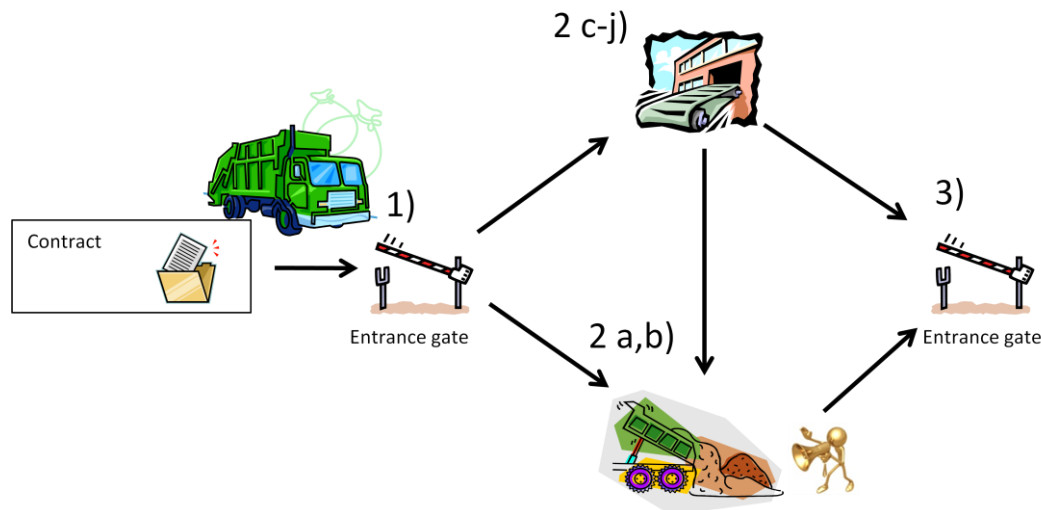
The plant is equipped with a sorting hall (capacity 100,000 tonnes/year) a disposal site for construction waste (Capacity 170,000 m<sup>3</sup>), a dismantling area for WEEE, a civic amenity side (capacity 500-1,000 tonnes/year), a green waste composting area (capacity 6,000 tonnes/year), a composting hall (30,000 tonnes/year), a temporary storage area for hazardous waste (capacity 500-1,000 tonnes/year), a waste water treatment plant and a power plant station for biogas with a capacity of about 2 MW. The active landfill cell for non-hazardous waste B1 has an area of about 8.06 ha and a volume capacity of about 1,200,000 m<sup>3</sup>. A second non-hazardous waste landfill site B2 is already planned, which will cover an area of about 7 ha and will have a capacity of about



**Figure 1.9-4: Overview of the hazardous and non-hazardous landfill sites of Ruse. (Poland)**

1,020,000 m<sup>3</sup>. A third non-hazardous waste landfill B3 (capacity about 1,000,000 m<sup>3</sup>) is also possible, as well as three further landfill cells C1, C2, and C3 with a total capacity of about 2,327,000 m<sup>3</sup>.

Waste accepted at the landfill site is mainly MSW (64 %), but also construction waste (15 %) and other wastes (21 %) including among others green waste, bulky waste, street cleaning waste, market waste and raw material.



**Figure 1.9-5: Flow chart of the waste acceptance procedure at Eko Dolina (Poland)**

#### Waste acceptance procedure

The different costumers, companies, institutions or individual clients carry different papers with them but the process of the waste acceptance is the same. Companies which regularly deliver waste have a contract with Eko Dolina.

1. The weight of the waste which is delivered to the landfill side is measured at the weighing bridge, and the corresponding documents are checked. If possible a visual control is performed. The documents include the waste transfer note and if needed the basic characterisation and compliance testing. In case of suspicion the waste is send back or transported to a storage area. After a closer investigation the waste can either be landfilled or is send back to the waste deliverer.
2. Depending on the waste the driver is told to drive to one of the following location:
  - a. Landfill cell B1
  - b. storage cell for construction material
  - c. Storage cell for homogenous waste
  - d. WEEE dismantling station

- e. Bulky waste shredder station
- f. Selected waste storage area (for impure selected waste which needs further separation)
- g. Sorting hall
- h. Secondary raw material areas
- i. Composition hall compost heap
- j. Uniform waste storage area
- k. Hazardous waste storage area

At many locations a new waste is generated (composting hall, sorting hall, WEEE dismantling area or bulky waste shredder station). This newly generated waste can be a raw material which is sold outside of the landfill site. Other wastes either transported internally to the adequate section (hazardous waste from the WEEE dismantling station to the hazardous waste storage area), or send to the landfill cell for disposal. It is always tried to keep the amount of waste which has to be disposed as small as possible.

At each location an employee of the landfill site inspects the unloading of the transport and a visual control is performed.

3. After unloading the lorry driver is send back to the weighing bridge for a second weighing to calculate the net weight of the waste. After the measurement a weighing bridge document is generated which serves for the invoice. In case of individual clients the payment is done before leaving the landfill side.

Data are stored at the weighing bridge as hard copy for 5 years and in the computer system till the closure of the landfill. The sum of information is used for the reports to the regional Inspectorates as well as for the Marshall.

#### Basic characterisation

In case a basic characterisation is necessary for a type of waste, a basic characterisation is filled in by the waste producer, which includes all fundamental requirements which are asked for in the WAC Decision as well as the Polish legislation. The documents are kept as hard copy for at least 5 years and in the computer system without time limit.

#### Compliance testing

Compliance testing is done at least once a year for waste requiring compliance testing.

### On-site verification

At the entrance of the landfill site the proper documents and permission, as well as the transport permission of waste are checked for all clients. If possible also a visual control is performed. A visual inspection of the waste as well as a check for basic characterisation and compliance testing (if needed) is performed at the disposal site.

In case of a negative verification at the weighing bridge the waste is refused by the weighing bridge operator.

In case of suspicion at the weighing bridge or at the disposal site the waste is either sent back to the waste deliverer or sent to a storage area for a closer inspection. After the inspection it will be decided, if the waste can be landfilled, is sent back to the waste deliverer or if the waste can be treated at the landfill site. The costs are taken by the deliverer. In case the waste cannot be landfilled the Environmental Institution is informed.

### Expert proposals related to potential modifications of the WAC

There are no proposals for the WAC Decision.

## 1.10 Country Report Romania

The WAC Decision is literally implemented by Romanian legislation. The different criteria to be defined individually by each Member State in accordance with the WAC Decision are in most cases only set by stating that the regional environmental agencies have to define the criteria.

The regional authorities again consider this task as justified by defining in the permits which types of waste are allowed at the corresponding landfill site.

During the landfill visits it was mentioned that waste producers can ask for acceptance papers at the regional authorities for their waste types are not included in the permit of the corresponding landfill site.

### 1.10.1 Legal assessment

Table 1.10-1 provides an overview on the legal documents transposing the WAC Decision requirements into national legislation. Furthermore the table shows a qualitative assessment of the level of implementation or possible divergences which are further explained and justified in the following Sections.

Romania			
Category	Corresponding national legislation	Implementation	Comments
1. Procedure		~	
1.1 Basic Characterisation	Section 1, 1. of the Annex to ORDIN Nr. 95/2005,	✓	
1.1.1 Function	Section 1, 1.2.-1.5. of the Annex to ORDIN Nr. 95/2005	~	The regional authority has to determine the time for record keeping
1.1.2 Fundamental requirements	Section 1, 1.6. of the Annex to ORDIN Nr. 95/2005	~	Point h): "waste is not excluded from disposal due to Section 5(3) of the Landfill Directive" is not transposed.
1.1.3 Testing	Section 1, 1.7.-1.9. of the Annex to ORDIN Nr. 95/2005	✓	
1.1.4. Cases where testing is not required	Section 1, 2. of the Annex to ORDIN Nr. 95/2005	✓	
1.2 Compliance Testing	Section 1 point 3. of the Annex to ORDIN Nr. 95/2005	~	The regional authority has to determine the time for record keeping
1.3 On-site verification	Section 1, 4. of the Annex to ORDIN Nr. 95/2005	~	The regional authority has to determine the time for sample keeping
2. Acceptance Criteria	Section 2, 1. of the Annex to ORDIN Nr. 95/2005		
2.1 Landfills for inert waste	Section 2, 2.1. of the Annex to ORDIN Nr. 95/2005	✓	
2.1.1 Short list	Section 2, 2.1. of the Annex to ORDIN Nr. 95/2005	✓	
2.1.2 Limit values	Section 2, 2.2. of the Annex to ORDIN Nr. 95/2005	✓	
2.1.2.1 Leaching limit values	ORDIN Nr. 95/2005 Section 2, 2.2.1.	✓	
2.1.2.2 Limit values for total content of organic parameters	Section 2, 2.2.2. of the Annex to ORDIN Nr. 95/2005	~	The regional authority has to determine the PAH limit value
2.2 Landfills for non-hazardous waste	Section 2, 3. of the Annex to ORDIN Nr. 95/2005	✓	
2.2.1 Without testing	Section 2, 3.1. of the Annex to ORDIN Nr. 95/2005	✓	
2.2.2 Limit values for non-hazardous waste	Section 2, 3.2. of the Annex to ORDIN Nr. 95/2005	✓	
2.2.3 Gypsum waste	ORDIN Nr. 95/2005 Section 2, 3.2.2.	✓	
2.3 Criteria for hazardous waste acceptable at landfills for non-hazardous waste, Art 6 c iii	Section 2, 3.3. of the Annex to ORDIN Nr. 95/2005	✓	

Romania			
Category	Corresponding national legislation	Implementation	Comments
2.3.1 Leaching limit values	Section 2, 3.3.1. of the Annex to ORDIN Nr. 95/2005	+	The limit value for Mo with the percolating test is set at 3 mg/l instead of 3.5 mg/l
2.3.2 Other criteria	Section 2, 3.3.2. of the Annex to ORDIN Nr. 95/2005	~	The regional authority has to determine criteria for monolithic waste as well as criteria concerning physical stability and bearing capacity
2.3.3 Asbestos waste	Section 2, 3.3.3. of the Annex to ORDIN Nr. 95/2005	✓	
2.4. Landfills for hazardous waste	Section 2, 4. of the Annex to ORDIN Nr. 95/2005	✓	
2.4.1 Leaching limit values	Section 2, 4.1. of the Annex to ORDIN Nr. 95/2005	✓	
2.4.2 Other criteria	Section 2, 4.2. of the Annex to ORDIN Nr. 95/2005	~	The regional authority has to determine criteria for monolithic waste
2.5 Criteria for underground storage	Section 2, 5. of the Annex to ORDIN Nr. 95/2005	✓	

**Table 1.10-1: Implementation of WAC Decision requirements in Romanian Legislation**

### 1.10.1.1 Legal framework

The WAC Decision has been literally transposed into Romanian legislation by **ORDIN Nr. 95 din 12 februarie 2005: Establishing acceptance criteria and treatment procedures for waste to be accepted at landfills and national lists of waste to be accepted in each class of landfill**; “Privind stabilirea criteriilor de acceptare si procedurilor preliminare de acceptare a deseurilor la depozitare si lista nationala de deseuri acceptate in fiecare clasa de depozit de deseuri” (hereinafter referred to as ORDIN 95/2005).

### 1.10.1.2 Acceptance Procedure

#### Basic Characterisation

The basic characterisation is literally implemented by Subsection 1. of Section 1, of the Annex to ORDIN 95/2005. The time for record keeping for the basic characterisation is stated to be not less than one year.

In the list for the fundamental requirements of the basic characterisation point h) “Information to prove that the waste does not fall under the exclusions of Article 5(3) of the Landfill Directive” is not included. It is stated that this is regulated by the IPPC permit.

#### Compliance testing

Compliance testing is literally implemented by Subsection 3. of Section 1, of the Annex to ORDIN 95/2005. The time for record keeping has to be determined by the regional environmental agency.

#### On-site verification

On-site verification is literally implemented by Subsection 4. of Section 1, of the Annex to ORDIN 95/2005. The period for sample keeping has to be determined by the regional environmental agency but shall not be less than one month.

### 1.10.1.3 Waste Acceptance Criteria

The waste acceptance criteria are literally implemented by Subsection 1. of Section 2, of the Annex to ORDIN 95/2005.

Regarding the monolithic waste, it is always stated that the regional environmental agencies have to set criteria to ensure that monolithic waste provides the same environmental protection as given for granular waste.

The test standards have been literally implemented by Section 3 of the Annex to ORDIN 95/2005.

#### Criteria for waste acceptable at landfills for inert waste

The criteria for waste acceptable at landfills for inert waste have been literally implemented by Subsection 2. of Section 2, of the Annex to ORDIN 95/2005. The limit value for PAH shall be determined by the regional environmental agency after an assessment of the corresponding landfill site.



Criteria for non-hazardous waste acceptable at landfills for non-hazardous waste

The criteria for non-hazardous waste acceptable at landfills for non-hazardous waste have been literally implemented by Subsection 3.3. of Section 2, of the Annex to ORDIN 95/2005.

Criteria for hazardous waste acceptable at landfills for non-hazardous waste

The criteria for stable non-reactive hazardous waste acceptable at landfills for non-hazardous waste have been literally implemented by Subsection 3.3.2. of Section 2, of the Annex to ORDIN 95/2005. It is stated that the ANC has to be evaluated. The criteria for asbestos waste have been literally transposed by Subsection 3.3.3. of Section 2, of the Annex to ORDIN 95/2005.

The leaching limit value for Molybdenum in case of a percolating test is set at 3 mg/l instead of 3.5 mg/l as stated in the WAC Decision. In this point, Romanian requirements are more stringent than the WAC Decision requirements. **Regarding the criteria to ensure that the waste has sufficient physical stability and bearing capacity, it is stated that the regional environmental agencies have to set a series of criteria to ensure that the waste has sufficient physical stability and bearing capacity.**

Criteria for waste acceptable at landfills for hazardous waste

The criteria for hazardous waste acceptable at landfills for hazardous waste have been literally implemented by Subsection 4. of Section 2, of the Annex to ORDIN 95/2005.

Criteria for underground storage

The criteria for waste to be disposed of in underground storage systems are literally implemented by Subsection 5. of Section 2, of the Annex to ORDIN 95/2005.

### 1.10.2 Site visits Romania

The organisation of the site visits has been realised in close cooperation with the Ministry of Environment and Forest, Direction of Waste Management and Hazardous Substances (Waste Management Unit). The Ministry organised the visits to the landfill sites Vivani Salubritate (MSW, non-hazardous and hazardous waste landfill), Tracon S.R.L. (non-hazardous waste landfill) and A.S.A. (non hazardous waste landfill).

The mentioned Annexes which regulate the proper documentation of the waste transport are included in the legislation 1061/10.09.2008, which implements Regulation 1013/2006/EC.

#### 1.10.2.1 Site visit to representative non-hazardous waste and hazardous landfill VIVANI Salubritate S.A. (Slobozia, landfill class A and B)

##### General terms



Figure 1.10-1: Overview of the hazardous and non-hazardous landfill sites of Vivani Salubritate S.A. (Romania)

The landfill site is operated by the private company VIVANI Salubritate S.A.. It started operation in 2003 and is equipped with a laboratory, a waste separation area, a treatment facility, a leachate collection and waste water pre-treatment facility as well as a landfill gas collection system, an access area, a tyre washing area, a weighing bridge and a ground water monitoring systems.

The pre-treating leachate plant is equipped with an ultra filtration and the pre-treated water is transported to the municipal waste water treatment plant. It is planned that the pre-treatment plant will be replaced with a new waste water treatment plant including a reverse osmosis and a biological treatment unit. After the installation of these facilities, a further treatment at the municipal waste water treatment plant will not be necessary.

On the landfill site there is also a treatment station for liquid waste which treats liquid waste with heavy metal content, acid liquid waste and also sludge.

In addition, an incineration plant is under construction.

The landfill site currently consists of one hazardous waste landfill site (~110,000 m<sup>3</sup> capacity), a non-hazardous landfill cell No. 1 (283,000 m<sup>3</sup> capacity) which is currently in a settlement process, a non-hazardous landfill cell No. 2 which is prepared but not in operation yet (235,000 m<sup>3</sup> capacity) and a non-hazardous landfill cell Nr 3 which is in operation (235,000 m<sup>3</sup> capacity of which ~ 66,000 m<sup>3</sup> are already filled). Once the three landfill cells, which are located next to each other, are filled to the same level additional waste can be disposed of, at their top. In addition to these 3 cells, 4 other non-hazardous waste cells, each with a capacity of 235,000 m<sup>3</sup>, can be prepared. The total capacity of the landfill site is about 1,693,000 m<sup>3</sup>. It was planned that the landfill site will operate at least for 20 years. However, due to increased waste separation, the operation time can be probably much longer. Beside the 3 existing cells for non-hazardous waste and the cell for hazardous waste two landfill cells for asbestos waste have been built.

Municipal solid waste, non-hazardous waste and hazardous waste are accepted at the landfill site.

The municipal solid waste is delivered by about 5 waste collecting companies. Waste collecting companies not delivering the waste directly transport the waste to one of four transfer stations. From there it is transported by Vivani Salubritate S.A. to the landfill site. The waste weight is taken at the transfer station from each arriving waste delivery as well as at the landfill site when the landfills' own lorries continue the waste transport from the transfer stations. The waste, from the waste collection companies, which is transported directly to the landfill site, is also weighted.

The municipal waste is separated at the landfill site. 35 % is used for incineration at a cement facility, 45 % is composted and used for engineering material at the landfill site, 10 % is used for recycling and 10 % is landfilled.

Non-hazardous waste is delivered by about 10 different companies, which have a contract with Vivani Salubritate S.A..

The landfill site is the only hazardous waste landfill in Romania which accepts hazardous waste from clients. The other 6 hazardous landfill sites only dispose of their own hazardous waste. The first step in the acceptance procedure of Vivani Salubritate S.A. for hazardous waste is to check if the corresponding waste type can be accepted according to the permit. If it can be accepted in general the waste is analysed in their own laboratory. Afterwards a contract is prepared.

### Waste acceptance procedure

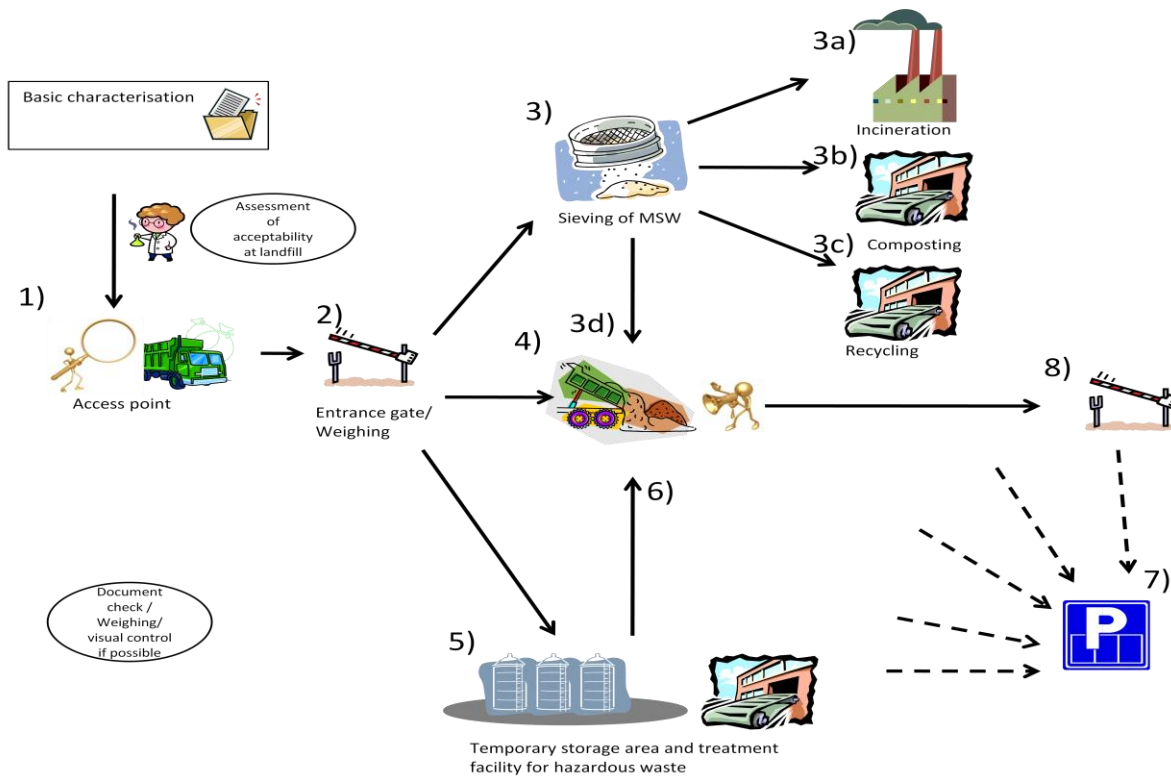


Figure -1.10-2: Flow chart of the waste acceptance procedure at VIVANI Salubritate S.A. (Romania)

Once the waste is deemed acceptable at the landfill site, a contract is made with the waste deliverer and the waste can be brought to the landfill site. The waste acceptance procedure at the landfill site is the following:

- 1) Before the waste transporter can access to the weighing bridge, the vehicle has to pass the access area. There the "On-site verification paper" ("Formular control visual al deseurilor industriale nepericuloase al intrarea pe amplasament") is filled in. It includes information as contract number, appearance of the waste, aggregate state, colour, smell, pH value or radioactivity. A sample of each load (except from MSW) is taken and the key parameters are controlled in the laboratory. This procedure is made for hazardous as well as non-hazardous waste. After the on-site verification, the waste transporter can proceed to the weighing bridge
- 2) The driver has to carry the "Hand over certificate" ("Proces Verbal de Predare-Primire", including Annex 3), the "Cargo handling form for (non-)hazardous waste" ("Formular de incarcare – descarcare deseuri (ne)periculoase"), the Annex 4 "Certificat of intermediate/final recovery or disposal" ("Certificat de valorificare/eliminare intermediary/final") and the "On-site verification paper" ("Formular control visual al deseurilor la descarcare") with him. The "Hand over document" is sent from Vivani to the waste producer who has to complete the document. The included Annex 3 has to be signed by the waste producer, transporter and waste receiver. In addition, the document "Certificat of intermediate/final recovery or disposal" has to be filled in and includes data about waste code, number of loads and the waste transporters company name. Another document which the driver has to hand over is the "On-site verification paper". This document is

used for data on sample taking and therefore includes information about waste code, colour, aggregate state, smell and place of disposal. The lorry driver has to hand over the documents to the weighing bridge operator when he enters the landfill site. The data are entered into the computer and the weight is taken.

In case of hazardous waste the driver also has to hand out Annex 1 and 2. Six copies of Annex 1 and 2 have to be prepared and a copy is given to the following persons and institutions:

- 1) waste transporter,
- 2) waste producer,
- 3) waste receiver,
- 4) local authority of waste producer,
- 5) local authority of waste receiver,
- 6) fire fighting institution.

Annex 1 "Formulare pentru aprobarea transportului de deseuri periculoase" is the form for the approval of the hazardous waste transport including information on the chemical composition of the waste. Annex 2 "Formular de expeditie/transport deseuri periculoase", the waste transport document, includes data such as the EWC code, waste quantity and registration numbers of the involved companies. The document is signed and stamped by the waste producer, transporter and receiver. All transports of hazardous waste are announced and agreed with the fire fighting inspectorate and a fire fighting document is filled in. Another document which has to be completed for hazardous waste is the "Waste treatment form" ("Proces verbal Tratare deseuri"). The document includes information about the treatment of the hazardous waste.

In case the hazardous waste amount is less than 1 t/a, a shorter documentation process can be performed by filling in the "Affidavit responsibility for hazardous waste < 1t/y" ("Declaratie pe propria raspundere pentru deseuri periculoase < 1 ton/an"). This document includes information about the company's registration number, amount of waste, date and signature.

Depending on the waste, different procedures take place after the weighing bridge.

- 3) MSW is sent to the separation facility and the waste is separated according to the description indicated in section "General terms".

The separated fractions are either

- a) Incinerated,
- b) Composted,
- c) Recycled,

d) Landfilled.

- 4) Non-hazardous waste is disposed of at the active non-hazardous waste landfill cell. The waste transport is awaited by the responsible landfill manager who is equipped with a radio. He controls the disposal of the waste and fills in a disposal document "Formular control visual al deseurilor la descarecare". The document includes information as aggregate state, smell, colour, EWC code and the place of disposal.
- 5) Hazardous waste is brought to a discharging platform and the test results are awaited. Once the test results are available, it is decided which treatment techniques are used and how.

After the treatment, another sample for analyses is taken and the waste is packed in big bags, metal or plastic barrels.

- 6) The packed waste is transported to the hazardous waste landfill cell and is disposed of.
- 7) In case there is any suspicion, either at the access point, the weighing bridge or at the place of disposal, the waste is sent to a safety area where it is kept until the analysing results are available and the corresponding actions can be set.
- 8) After the waste is disposed of, the driver moves back to the weighing bridge and the weight of the empty lorry is taken. A weighing bridge document "Nota de Cantarire" including data as date gross and net weight, is printed out and one copy is given to the driver. Another copy is kept at the landfill site.

Hard copies are moved to the archive after one year and are kept without time limit. Also the data in the computer system are kept without time limit.

#### Basic characterisation

Before the waste is accepted, the document "Formular identificare Deseu" has to be completed by the waste producer. The document represents the basic characterisation. This document includes information about the chemical composition, waste description, packaging and EWC. Further, the document is stamped and signed by the waste producer, transporter and receiver. In some cases a sample of the waste is requested and analysed in the own laboratory before the waste is accepted to be disposed of at the landfill site. If everything has been approved an offer is prepared and signed.

The driver has to hand over the accompanying document to the weighing bridge operator on arrival. In addition to this document, the driver is obliged to carry the waste transport document "Aviz de insotire a Märfii". Once all documents have been checked, the waste can be accepted at the landfill site.

#### Compliance testing

From each incoming waste except MSW, a sample is taken and analysed in the laboratory of the landfill site.

#### On-site verification

On-site verification takes place at the access point in front of the weighing bridge. An additional on-site verification is performed during the waste disposal. The two documents “Formular control visual deseurilor industriale nepericuloase la intrarea pe amplasament” (at the access place) and Formular control visual al deseurilor la descarcare” (at the place of unloading) are filled in.

#### Expert proposals related to potential modifications of the WAC

There are no proposals for the WAC Decision.

#### 1.10.2.2 Site visit to representative non-hazardous waste landfill Tracon (Sibiu, landfill class B)

##### General terms

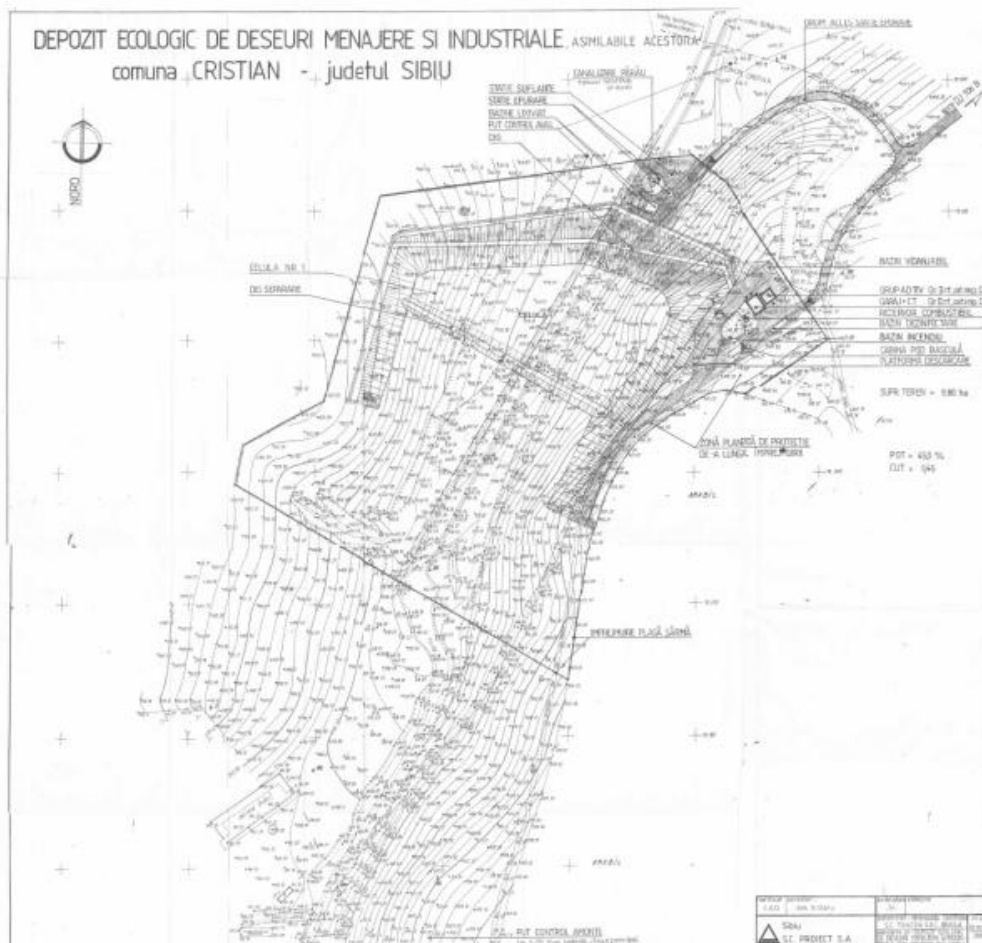


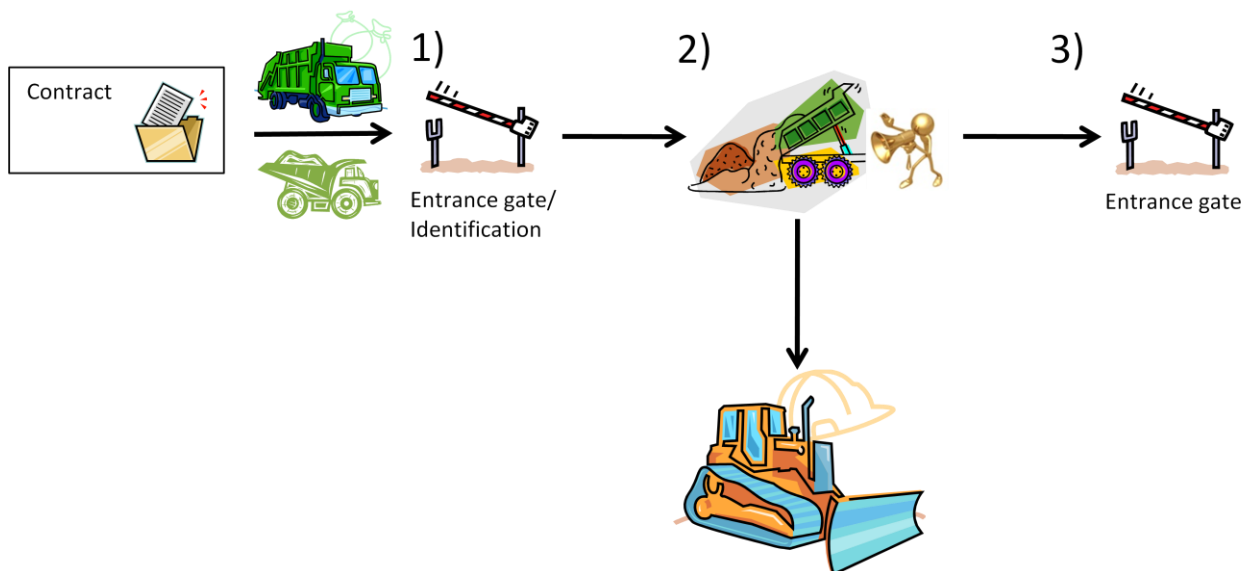
Figure 1.10-3: Overview of the non-hazardous landfill site of Sibiu (Romania)

The landfill for municipal and industrial non-hazardous waste from Cristian village is located about 6 km in the West of Sibiu and is operated by S.C. Tracon S.R.L. Braila. The landfill started operation in 2004 and covers an area of about 24 ha for a total of 8 disposal sites. The site is equipped with a leachate tank, a leachate treatment plant, a weighing bridge, a tyre cleaning area and three landfill sites. The three landfill cells cover an area of 2.5 ha, 2.5 ha and 2.6 ha respectively. There are two large waste collection companies under contract. The permit for the landfill site includes a table of EWC codes, listing the wastes which can be accepted at the landfill site. All listed waste types have a EWC code belonging to chapter 20. In case

industrial non-hazardous waste which is not on the list shall be accepted for disposal at the landfill site the competent local authorities have to be informed. Disposal is only possible after the agreement of the authorities. For this purpose the waste producer has to send a waste description to the local authority including all chemical analyses of the waste. If the local authority agrees that this waste can be accepted at the landfill site the waste producer receives a signed acceptance paper. Only if the waste producer has such a signed waste acceptance paper for the industrial non-hazardous waste, a contract will be signed by the landfill site.

The annual amount of MSW waste disposed of at the site is about 50.000 t whereas the amount of industrial non-hazardous waste is only about 4,000 t. Two large waste collection companies deliver the MSW and about 5 companies bring their industrial non-hazardous wastes in a more or less regular basis to the landfill.

### Acceptance of waste



**Figure 1.10-4: Flow chart of the waste acceptance procedure at Sibiu (Romania)**

After the waste is deemed acceptable, and a contract has been established, the waste can be brought to the landfill site. Very small amounts can also be delivered by private households if they are accompanied by necessary documents.

The waste acceptance procedure is as following:

- 1) The waste driver arrives at the weighing bridge and hands over the Annex 3 document “Cargo handling form for non-hazardous waste” (“Formular de incarcare –descarcare deseuri nepericuloase”) and a delivery note (“Aviz de expeditie”) to the weighing bridge operator. The latter enters all data into the computer. Annex 3 includes data about the waste quantity (volume), EWC code and weight. It is signed and stamped by the waste producer, transporter and receiver. The delivery note includes information such as vehicle registration number, driver name, driver’s signature, waste type, weight, delivery number and is signed by the weighing bridge operator. One copy is given to the driver and the other is kept at the landfill site. While the weight is taken and



the data are entered into the computer the waste is visually inspected. In case of suspicion a sample is taken and a rapid leaching test is performed. The result of the test is available after two hours.

- 2) From the weighing bridge the waste is transported to the disposal site. The waste is always disposed of at the same place from where it is distributed into the landfill site by caterpillars. The process of disposal is controlled by an employee of the landfill site. In case of suspicion concerning the waste composition, actions can be taken on a case to case base.
- 3) After the disposal of the waste, the lorry drives back to the weighing bridge and the weight is taken again. A weighing bridge document "Nota cantarire nr." is printed out. One copy is given to the driver and a second is kept at the landfill site. The weighing bridge document includes information as the driver name, vehicle registration number, net weight, landfill operator, waste transporter, delivery number and the signature of the driver and the weighing bridge operator.

The documents are kept as hard copy as well as in the computer system without time limit.

#### Basic characterisation

For each waste type which is not included in the permit of the landfill site (the permit only includes EWC codes belonging to chapter 20) a basic characterisation with detailed chemical analyses has to be prepared and sent to the local authorities. Only if the local authorities sign an acceptance paper a contract will be made between the landfill operator and the waste producer.

#### Compliance testing

Each contract only has a validity of one year and has to be issued again after this year. In case there have been inconsistencies with this waste, new chemical analyses are necessary.

In regular intervals the landfill operator decides to take spot tests from incoming wastes from the different waste producers. These are analysed in the laboratory located at the landfill site and an analysing document "Cu valorile obtinute la testul de levigabilitate pentru" is filled in. This analysing document includes pH value, conductivity, salinity, EWC code of the waste, visual appearance date and waste producer.

#### On-site verification

The waste is visually inspected at the weighing bride together with the document. A second visual inspection takes place at the intermediate disposal area from where the waste is pushed and distributed into the landfill body.

#### Expert proposals related to potential modifications of the WAC

There are no proposals for the WAC Decision.

### 1.10.2.3 Site visit to representative non-hazardous waste landfill A.S.A. (Arad, landfill class B)

#### General terms



**Figure 1.10-5: Overview of the non-hazardous landfill sites of A.S.A. (Romania)**

The site visit of Arad started operation in 2003 and is operated and owned by the company A.S.A. The landfill site is located about 5 km in the north of Arad and is equipped with a weighing bridge, an administrative office, tyre washing facility, storage area for secondary raw materials as cardboards, plastic, foil and PET, bailing station for the secondary raw materials, different water basins, a waste water treatment plant and a leachate water- as well as a landfill gas collection system (The landfill gas is in the moment flared but plans are ongoing to install a power station with an energy production of 6 MWh per day) and a non-hazardous waste landfill area. The non-hazardous waste landfill area consists of 15 cells. 7 of these 15 cells already exist. Cells 1-3 have been filled and are now ready for recultivation. Cell 4 is in a recultivation stage and cell 5-7 are in an active phase. The 15 cells have a size between  $\sim 100,000 \text{ m}^3$  and  $\sim 160,000 \text{ m}^3$  (two cells, cell 14 and 15 only have a capacity of  $80,000 \text{ m}^3$  and  $40,000 \text{ m}^3$  respectively). The total capacity of the landfill site is  $1,500,000 \text{ m}^3$ . After settling of the waste it will be possible to dispose of another  $300,000 \text{ m}^3$ .

The landfill site can accept two different waste types, MSW waste and industrial non-hazardous wastes.

The MSW is delivered by one large waste collection company from Arad and two smaller waste collection companies serving municipalities located in some distance to the landfill site. In addition, A.S.A. also has their own fleet of lorries delivering the MSW from some households which have a direct contract with them. The waste from the waste collection company of Arad is first brought to a separation station which

only has a recovery rate of 5 %. The rest is forwarded to the landfill site of A.S.A. All MSW collecting companies have a contract with A.S.A. Very small waste amount are also delivered by private households.

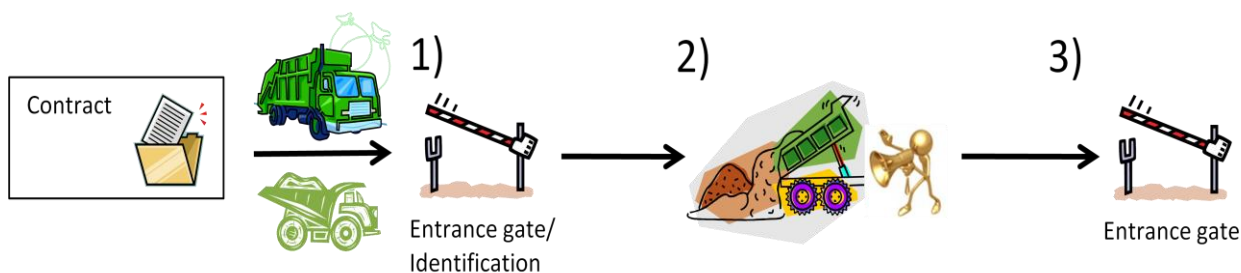
About 120,000 t of MSW is disposed of at the landfill every year. This waste amount is collected from about 250,000 inhabitants.

A.S.A. also holds contracts with about 300 companies for the disposal of non-hazardous waste. Before the waste is accepted for disposal of the landfill site, each waste producer has to prepare an Annex 3 document “Cargo handling form for non-hazardous waste” (“Formular de incarcare-descarcare deseuri nepericuloase”). This document includes information such as waste producer, waste characteristic, the waste transporter, EWC code, waste amount and date. The document is signed and stamped by the waste producer, waste transporter and waste receiver. After the waste is deemed as acceptable at A.S.A, an offer and a contract are signed and the waste can be transported to the landfill site.

In general, A.S.A, picks up the non-hazardous waste at directly the waste producer and transports it to the landfill site.

There are some companies for whom secondary raw materials are stored at the landfill site. After the materials are bailed they are sold.

#### Acceptance procedure



**Figure 1.10-6: Flow chart of the waste acceptance procedure at A.S.A. (Romania)**

After the waste is deemed acceptable and a contract has been established, the waste can be brought to the landfill site. Very small amounts can also be delivered by private households.

The waste acceptance procedure is as follows:

- 1) The waste driver arrives at the weighing bridge and hands over the Annex 3 document to the weighing bridge operator. The latter transfers all data into the computer system. The document is signed and stamped by the waste producer as well as the weighing bridge operator. One of the copies is kept at the landfill site, the other is given to the waste producer and in case another company is involved, this company also receives a copy. During the transfer of the information into the computer system, the weight is measured and the driver is instructed to which cell to proceed.
- 2) After weighing, the waste is transported to the active landfill cell. The disposal of the waste is controlled by the compactor driver. In case of suspicion (e.g. in case of hospital waste mixed with

MSW) the landfill manager is informed to inspect the waste. If it is decided that the waste cannot be accepted the lorry is loaded again and send off the landfill site.

- 3) After the disposal of the waste, the lorry drives back to the weighing bridge. The weight is taken again and a weighing document is printed out. The weighing document includes, among others, data on delivery day and time, weight, waste producer, waste receiver and EWC code. Three weighing bridge copies are printed out. One is kept at the landfill site, one is given to the waste producer and one is given to the local authorities. After the weight is taken and the weighing bridge document has been given to the driver the lorry can leave the landfill site.

All documents are kept for at least five years. In the moment all hardcopies have been kept. The data in the computer system are kept without time limit,

#### Basic characterisation

For the non-hazardous waste from the industry a basic characterisation is prepared by the waste producer. Upon this document, it is decided if the waste can be accepted at the landfill site of A.S.A.

#### Compliance testing

All contracts are set for the duration of one year. Therefore, annual renewals of the contracts have to be made. For this new contract a new waste analyses has to be prepared and delivered to the landfill site.

#### On-site verification

At the weighing bridge the documents of the waste are checked and it is controlled if the waste can be accepted. At the disposal phase the unloading is controlled by the compactor driver who informs the landfill manager in case of suspicion. Further procedures are decided on a case to case base. Determination of compliance of declared waste with the delivered waste at the entrance is due to the structure of lorries used for collection and transport of waste (closed trucks) difficult.

Therefore, the detailed waste check is made upon the discharge in the landfill by the landfill compactor driver, which is trained accordingly and has the possibility to photograph the waste if non-compliance appears.

#### Expert proposals related to potential modifications of the WAC

There are no proposals for the WAC Decision.

## 1.11 Country Report Slovenia

The WAC Decision requirements are generally well implemented by Slovenian legislation. However, some minor divergences could be identified as follows:

- Some aspects are only or mainly indicated in the obligatory form sheet for the basic characterisation;
- Waste of the same holder may be delivered without testing provided that the total suspended volume in one year does not exceed 15 tonnes;
- A time for record keeping of compliance tests (documentation) is not set;
- The short list for waste types acceptable without testing is extended;
- No pH value is provided in the footnote of the leaching limit value for stable, non-reactive hazardous waste on landfills for non-hazardous waste;
- No criteria have been set for monolithic waste;
- The physical stability and bearing capacity for non-reactive hazardous waste is only requested by the form sheet for the basic characterisation but criteria are not set;
- The ANC does not have to be evaluated.

### 1.11.1 Legal assessment

Table 1.11-1: provides an overview on the legal documents transposing the WAC Decision requirements into national legislation. Furthermore, the table shows a qualitative assessment of the level of implementation or possible divergences which are further explained and justified in the following sections.

Slovenia			
Category	Corresponding national legislation	Implementation	Comments
1. Procedure		~	
1.1 Basic Characterisation	Article 6 and 11, Decree 32/06	~	
1.1.1 Function	Article 11, Decree 32/06, Article 5, §7, 98/07 Decree and the obligatory form sheet to which is made referral to in Article 11(4), Decree 32/06	~	Some aspects are only or mainly indicated in the obligatory form sheet for the basic characterisation.
1.1.2 Fundamental requirements	Article 5, 9 and 11, Decree 32/06 , additional document to which is made referral to in Article 11 (4), Decree 32/06 , Article 2 and 5 34/08, Article 43, consolidated version of 2009, Article 5, Decree 62/08	~	Some aspects are only or mainly indicated in the obligatory form sheet for the basic characterisation.
1.1.3 Testing	Article 11, 13, 15, Decree 32/06	✓	
1.1.4. Cases where testing is not required	Article 12, 14 and Annex 3, Decree 32/06	~	The list excluding waste types from testing is extended (see 2.1.1 Short list).
1.2 Compliance Testing	Article 26, 27, 28, Decree 32/06	~	A time for record keeping for documents evidencing the quality of the waste received at the facility is not set.
1.3 On-site verification	Article 20, 26, 27, 28, Decree 32/06; Article 9, Decree 53/09	✓	
2. Acceptance Criteria	Article 6, Article 63, Decree 32/06	✓	
2.1 Landfills for inert waste	Article 6 (3), 14, 20,23, Annex 3, Decree 32/06	~	
2.1.1 Short list	Annex 3, Decree 32/06	~	The list is extended; additional EWCs: 010306, 010408, 010412, 191209). The footnote of 170101, 170102, 170103, 170107 is shortened.
2.1.2 Limit values	Annex 2, Point 6, Decree 32/06	~	
2.1.2.1 Leaching limit values	Annex 2, Point 6.1, Decree 32/06	✓	
2.1.2.2 Limit values for total content of organic parameters	Annex 2, Point 6.2, Decree 32/06	✓	
2.2 Landfills for non-hazardous waste	Annex 2, Table under 4.1, Decree 32/06	~	

Slovenia			
Category	Corresponding national legislation	Implementation	Comments
2.2.1 Without testing		+	Cases without testing are not defined. Testing is compulsory.
2.2.2 Limit values for non-hazardous waste	Annex 2, Point 3. and 4, Table under 4.1, Decree 32/06	~	No criteria for monolithic waste are defined. Footnote (*) is divergent (more stringent) as no alternative pH value is mentioned.
2.2.3 Gypsum waste	Article 6(2), Annex 2, Point 4.3, Decree 32/06	✓	
2.3 Criteria for hazardous waste acceptable at landfills for non-hazardous waste, Art 6 c iii	Annex 2, Point 2, Decree 32/06	~	
2.3.1 Leaching limit values	Annex 2, Table under 2.2, Decree 32/06	~	No criteria for monolithic waste are defined.
2.3.2 Other criteria	Annex 2, Table under 2.3, Decree 32/06	~	It is not mentioned that the ANC has to be measured. No criteria for monolithic waste or physical stability and bearing capacity are defined. No pH value in the footnote for TOC is mentioned.
2.3.3 Asbestos waste	Article 6 (2), Annex 2, 2.4, Decree 32/06	✓	
2.4. Landfills for hazardous waste	Article 6 (1), (4), Annex 2, Decree 32/06	~	
2.4.1 Leaching limit values	Annex 2, Table under 1.1, Decree 32/06	✓	
2.4.2 Other criteria	Annex 2, Table under 1.2, Decree 32/06	~	It is not mentioned that the ANC has to be measured. No criteria for monolithic waste are defined.
2.5 Criteria for underground storage	Article 59-62, Annex 8, Decree 32/06	✓	

**Table 1.11-1: Implementation of WAC Decision requirements in Slovenian Legislation**

#### 1.11.1.1 *Legal framework*

The WAC Decision has been transposed into Slovenian legislation by **Decree OJ RS, No. 32/06 on the landfill of waste** (hereinafter referred to as Decree 32/06) and was amended by **OJ RS No. 98/07, 62/08, 53/09** (hereinafter referred to as Decree 98/07, 62/08, 53/09).

According to Chapter II, Article 6(2) the Decree 32/06 additional subcategories for non-hazardous landfills are defined.

The landfill classes are implemented as follows:

- Hazardous waste landfills
- Non-hazardous waste landfills with the following subcategories:
  - **Municipal waste,**
  - **Other non-hazardous waste,**
  - **Non-hazardous waste with a high content of biodegradable substances.**
- Inert waste landfills

#### 1.11.1.2 *Acceptance Procedure*

##### Basic Characterisation

The basic characterisation is defined by Article 6 and 11, Decree 32/06.

The function of the basic characterisation is implemented by Article 6 and 11, Decree 32/06. As mentioned below in detail some details concerning the function and the fundamental requirements of the basic characterisation are indicated in an obligatory document (hereinafter referred to as form sheet) to which is made referral to in Article 11(4) of Decree 32/06.

The basic information on the waste is implemented by Article 11 (1), (2) and (3), Decree 32/06. In the national legislation waste name, its description and characteristics are addressed by the Article itself and more detailed covered by the above mentioned form sheet to which is made referral to in Article 11(4). **Some aspects are only or mainly indicated in the obligatory form sheet for the basic characterisation. This form is obligatory. However, it is not a legal document.**

The testing frequency is 12 months and every 2,000 tons of municipal waste have to be tested at least every six months and maximum each month .

The period for record keeping is five years as indicated by §7, Article 5, Decree 98/07.



The fundamental requirements for basic characterisation are stipulated in Article 5, 9 and 11, Decree 32/06 and in Article 5 of Decree on waste management (OJ RS No. 34/08). Some aspects are covered in detail by the form sheet.

The testing requirements are compliantly stipulated in Article 11, 13 and 15, Decree 32/06. For regularly generated waste exemptions from testing are defined in compliance with the WAC Decision in Article 13(1-3), Decree 32/06.

Cases where testing is not required are compliantly transposed into national legislation by Article 12, 14 and Annex 3 to the Decree 32/06. **Waste of the same holder may be delivered without testing provided that the total suspended volume in one year does not exceed 15 tonnes** and that the holder guarantees in a written form that the waste does not exceed this quantity and that it is not contaminated with hazardous components and the proportion of biodegradable material is less than 5%, type, origin and place of generation must be fully known of each delivery. In addition to the listed waste types which do not have to be tested accordingly to the WAC Decision some EWCs have been added (see 2.1.1 Short list).

#### Compliance testing

Compliance testing is accordingly implemented by Article 26, 27 and 28 of Decree 32/06. Compliance testing (i.e. basic characterisation) is defined by Article 11, Decree 32/06 and amendments for of all types of waste which is regularly delivered by the waste producer. It has to be performed once a year.

Every 2.000 t of municipal waste has to be tested. Alternatively and if the quantity is less than 2.000 t municipal waste is tested every half year; if the quantity is more than 2.000t per month, testing is obligatory at least once a month set by Article 5 of Decree 53/09).

Furthermore, at least 2 % of the accepted waste has to be tested. As concerns inert waste at least 0.5 % has to be tested. Minimum 4 % of the waste without hazardous components and which has not been compliant to the key parameters during the last five years has to be tested.

The period for sample keeping is one month as amended by Article 10 of Decree 98/07. Nevertheless, **a time for record keeping for documents of compliance testing evidencing the quality of the waste received at the facility is not set specifically**. However, the time for record keeping for basic characterisation is defined for the time of landfill operation by Article 11 of Decree 98/07.

#### On-site verification

On-site verification is implemented by Article 20, 26, 27 and 28, Decree 32/06 and as amended by Article 9, Decree 53/09. The implementation is in accordance with the requirements of the WAC Decision.

Every 1000 ton has to be tested from one waste producer. The period of keeping on-site samples is determined at minimum one month as amended by Article 28 of Decree 32/06.

No rapid test methods are defined.

### 1.11.1.3 Waste Acceptance Criteria

According to Article 6, Decree 32/06, the waste acceptance criteria are implemented with some minor divergences in comparison with the WAC Decision.

The leaching limit values are listed in Annex to the 3 Decree 32/06. The chosen test method is L/S=10 l/kg and defined for all landfill classes.

The possibility to accept higher limit values under certain circumstances is stipulated in Article 6, Decree 32/06. The Ministry of Environment may allow landfill operators higher limits values mainly in compliance with the WAC Decision. In Slovenian legislation the obligation to notify such permits to the EC is not explicitly mentioned, however, until today any permit for the acceptance of higher values was issued.

Cases without testing are not defined by national legislation. Therefore the Slovenian legislation is even more stringent as testing is compulsory.

**No specific criteria for monolithic waste are set. Monolithic waste produced in Slovenia is used as building material or as a component of artificially prepared soil.**

The following measurements (EN and DIN standards) are indicated by the national legislation:

Measurement	Slovenian standard
Characterization of waste - Preparation of test portions from the laboratory sample	OSIST prEN 15002
Characterization of waste - Sampling of waste materials	OSIST prEN 14899
Characterization of waste - Sampling of waste materials	prCEN/TR 15310/1-5
Characterization of sludges - Determination of the loss on ignition of dry mass	SIST EN 12879
Characterization of waste - Determination of total organic carbon (TOC) in waste, sludges and sediments	SIST EN 13137
Water quality -- Determination of benzene and some derivatives Head-space gas chromatographic method and Method using extraction and gas chromatography	SIST ISO 11423/1-2
German standard methods for the examination of water, waste water and sludge - Sludge and sediments (group S) - Determination of six selected polycyclic aromatic hydrocarbons by high performance liquid chromatography (HPLC) using fluorescence detection (S 21)	DIN 38414-21
German standard methods for the examination of water, waste water and sludge - Sludge and sediments (group S) - Determination of six selected polychlorinated biphenyls by gas chromatography (S 20)	DIN 38414-20
Testing of petroleum products; determination of polychlorinated biphenyls (PCB); preparation by liquid chromatography and determination of six selected PCB compounds by gas chromatography using an electron capture detector	DIN 51527-1

**Table 1.11-2: Measurement standards in Slovenian Legislation**

#### Criteria for landfills for inert waste

The leaching limit values for landfills for inert waste are listed under Point 6.1, Annex 2 to the Decree 32/06 and are fully compliant with the leaching limit values set by the WAC Decision.

The limit values for total organic content of organic parameters are fully compliant. The limit value for PAH is 6 mg/kg of dried matter. Six substances have to be tested as defined by Annex 5, point 4, Table 1, footnote 1 of Decree 32/06.

The short list indicated in Annex 3 to the relevant Decree is extended (additional EWCs: 01 03 06, 01 04 08, 01 04 12, 19 12 09). The footnote of 17 01 07, 17 01 02, 17 01 03, 17 01 07 is shortened and therefore more stringent.

#### Criteria for landfills for non-hazardous waste

The acceptance criteria defined for waste acceptable at landfills for non-hazardous waste are generally in line with the WAC Decision except that **no criteria for monolithic waste are set**. Also the additional subcategories are in accordance with the EU legislation.

In addition to the regular limit values, the TOC limit values are set for the different subcategories as follows:

- municipal waste: 5% of the total mass, (i.e. the maximum level of total organic carbon is only valid for the biodegradable material in municipal waste);
- other non-hazardous waste: 3% of the total mass; the maximum level may be exceeded, if the DOC does not exceed the threshold limit value;
- non-hazardous waste with a high content of biodegradable material after R3 (i.e. MBT): 18% of the total mass.

Furthermore, heating values are indicated for non-hazardous waste with a high content of biodegradable material (<6000 kJ/kg dry mass) and for municipal waste (6000 kJ/kg dry mass).

The Environmental Agency may determine for each landfill in any calendar year higher values for biodegradable organic carbon of municipal waste in accordance with Article 7 of Decree 32/06 if the heating value of waste does not exceed the limit value (6000kJ/kg dry mass).

For some substances higher leaching limit values are set for non-hazardous waste with a high content of biodegradable material than proposed for stable, non-reactive waste to be disposed of at landfills for non-hazardous waste (Cd: 3 (instead of 1 for granular non-hazardous waste/stable, non-reactive waste), F: 250 (150), DOC: 7.500 (800)). However, this is compliant as these limit values are not covered by the WAC Decision.

The requirements to dispose of gypsum waste are implemented by Annex II, Point 4.3 and in full accordance with the WAC Decision.

#### Criteria for hazardous waste acceptable at landfills for non-hazardous waste

Criteria and leaching limit values for non-reactive hazardous waste are compliantly implemented in Point 2, Annex 2 to Decree 32/06.

However, some divergences and minor deficits exist as **no criteria for monolithic waste have been established and that it is not explicitly stated that the ANC has to be measured**.

**The physical stability and bearing capacity for non-reactive hazardous waste is requested by the form sheet for the basic characterisation and not directly transposed into the legislation.**

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For the other criteria, no pH value in the footnote for TOC is mentioned.

Criteria for asbestos waste are implemented by Article 2, and Point 2.4, Annex 2 to the relevant Decree and fully compliant to the WAC Decision.

Criteria for waste acceptable at landfills for hazardous waste

The criteria for hazardous waste landfills are implemented by Article 6(1) and (4) and Annex 2 to Decree 32/06 and mainly in accordance with the WAC Decision except that the ANC does not have to be explicitly evaluated and that no criteria for monolithic waste are set.

Footnote (\*\*) indicates that the LOI shall be used or the TOC in stabilized and non-reactive hazardous waste.

Footnote (\*\*) indicates that the value of the parameter may be exceeded if the DOC does not exceed the value of the parameter from the previous point. No pH value is mentioned.

Underground storage

Criteria and specific procedures are transposed into Slovenian legislation by Article 59-62 and Annex 8 to Decree 32/06 and fully compliant. However any underground storage exists in Slovenia and none is planned.

### 1.11.2 Site visit

The organisation of the site visit has been realised in close cooperation with the Ministry of Environment (MoE) of Slovenia which recommended to visit the landfill Celje Regional Waste Management Centre (RWMC Celje). In addition, two representatives of the MoE have participated in the site visit.

#### 1.11.3 *Site visit to representative non-hazardous waste landfill (Celje, landfill class B)*

##### General terms



Figure 1.11-1: Overview of the non-hazardous landfill Celje (Slovenia); Picture by RWMC Celje

The Celje Regional Waste Management Centre is operated by Simbio, d.o.o. and located about 60 km northeast to Ljubljana and owned by a group of municipalities. The main investor of the centre is the City Municipality of Celje. The center was mainly financed by the EU Cohesion Fund and in regular operation since 2009. MSW from the 24 contracted and co-investor municipalities (~230,000 inhabitants) is treated and landfilled in RWMC Celje. Furthermore, other non-hazardous waste from approximately 200 industrial clients from the region is disposed of in the landfill. As RWMC Celje has contracts with all MSW collection companies, all MSW of the region will be disposed of in this landfill site.

It is a non-hazardous waste landfill for disposal of waste with a high content of biodegradable material. After the MBT residential waste must not exceed a TOC limit value of 18 %, industrial and commercial waste must not exceed the TOC limit value of 5 %.

RWMC Celje is divided into two phases.

- Phase I started regular operation since October 2009 and comprises a composting plant for biodegradable waste, a sorting plant for separately collected fractions of waste, a bulky waste dismantling facility each with a capacity of 5,000 tons per year, a landfill with a volume of 1,800,000m<sup>3</sup>, administrative building and a car washing facility.
- Phase II is in a trial operation until 2010. It consists of the Mechanical and Biological Treatment Plant and the Celje District Heating Plant which is geographically separated from the landfill area. The MBT plant has an annual capacity of 61,500 tons of rest of municipal waste and comprises biological stabilisation and drying. Light fractions are extracted and transported to the heating plant. The remaining waste after the MBT is landfilled (~35 %). The Celje heating plant has a heating power of 15 MW and a maximum electrical power of 1.9 MW. The total capacity is 25,000 tons per year and an average heating value of 14,000 kJ/kg.

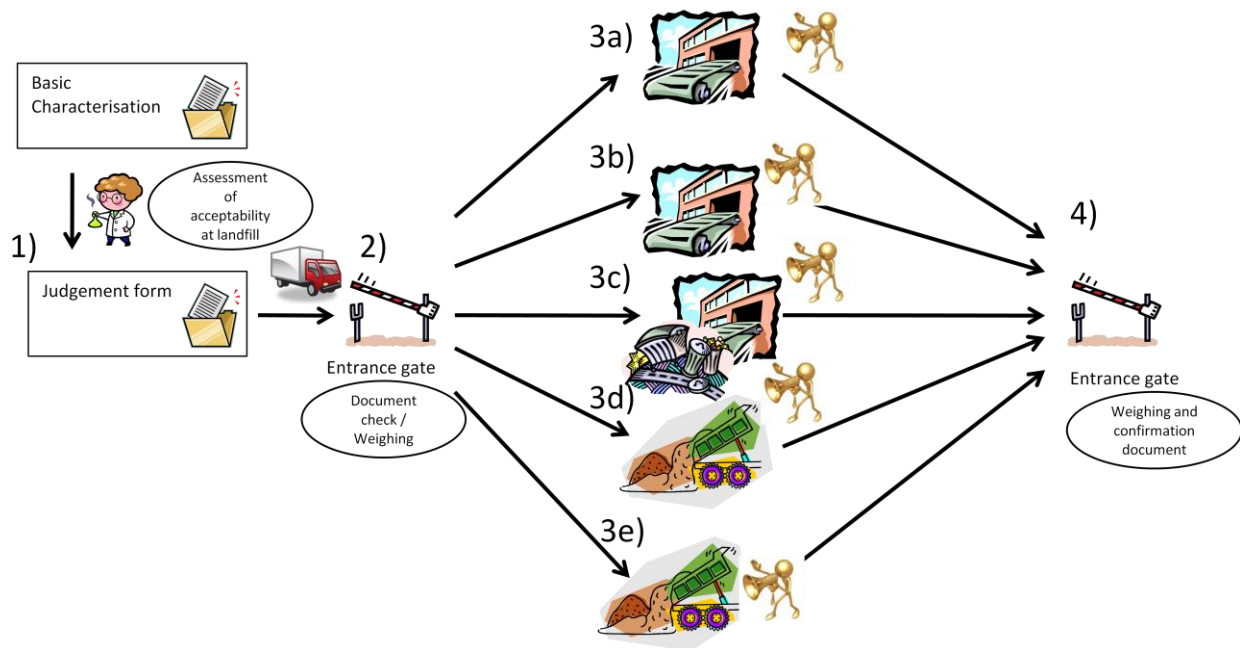
The landfill site also comprises an old field (in operation since 1974) (without sealing system, leachate collection, gas collection). A further landfill field was rehabilitated in 1995 and includes an implementation of leachate collection system, capture of landfill gas and torch incineration. The old field is still in operation for disposal of asbestos waste. Since 2002 a first gas power plant is in operation to use the landfill gas. The total power is 625 kW (electricity) and 766 kW (heat). In 2007 a new gas power plant started operation. The power of the new plant is 1 MW (electricity) and 1020 kW (heat).

The new field constructed within phase I has today a remaining capacity of 1,680,000 m<sup>3</sup> and shall be in operation for the next 30-35 years. The new field is equipped with leachate collection system, leachate treatment plant etc.

In 2008 70.000 tons of waste (60,000 tons of MSW and 10,000 tons other waste) was delivered to the landfill. 60% of the total landfilled waste was residential waste and the rest industrial and commercial waste.

As there are major difficulties with heavy metals in biodegradable waste (e.g. garden waste) due to heavy metal industries in the past, the composted material cannot be sold and is therefore used as covering material for the landfill.

### Waste acceptance procedure



**Figure 1.11-2: Flow chart of the waste acceptance procedure at RWMC Celje (Slovenia)**

The landfill site is equipped with an electronic waste management information system where all clients are registered.

The waste acceptance process flow at RWMC Celje is as follows (see Figure 2):

1. Once a waste type is deemed to be acceptable at the landfill based on its characteristics as specified in the basic characterisation form (Ocena Odpadka (form sheet for basic characterisation)), the waste producer is informed by an official confirmation (hereinafter referred to as judgement document) that the waste can be delivered to the landfill site. This form contains detailed information on the waste characteristics (e.g. waste producer name and address, EWC, industry type, description of the waste generation, results of chemical analyses, waste quality (colour, odor etc.) and composition) and some specific information (concerning the waste treatment, etc.). This form is also required for municipal waste.
2. At the entrance gate every lorry has to stop for its identification and weighing. The MSW drivers belonging to the public landfill operator Simbio with regularly generated wastes use their automatic “client identification card” when they enter the landfill site at the weighbridge. After transferring all data and weighing the loaded waste, the driver receives a signal to continue to the landfill site. The identification card carries information concerning the client and transport company (e.g. customer number, driver, registration number, date, time and weight).

All other drivers show a consignment form and the movement document (Evidenčni list pošiljke odpadkov). This document is handed over to the bridge operator who enters the customer number/lorry identification number and the corresponding information of the waste management

system (e.g. waste producer and waste type). A print-out of this consignment form is created and signed.

3. After the entrance procedure, the load (MSW) is sent to one of the following areas and after each unloading either for treatment or disposal visually controlled:
  - a) separately collected waste is sent to a sorting plant;
  - b) biodegradable waste (separately collected) is sent to the composting plant;
  - c) residual waste is sent to the MBT;
  - d) asbestos waste is sent to a separated cell for asbestos waste;
  - e) after MBT the waste is sent either to the heating plant or disposed of at the landfill.

In case of suspicion the waste is sent to a separated area on the landfill for a further check.

The visual inspection is carried out already at the entrance area with installed cameras, but as the majority of arriving lorries are closed on the top this is hardly applicable. Therefore the visual inspection is also performed when the waste is unloaded e.g. in the MBT plant. Furthermore, the unloading is supervised by an employee on the landfill field. If the load contains non-acceptable waste, the driver is stopped at the weighbridge and is sent back for reloading.

Furthermore, the landfill is equipped with a shredder installed on the active landfill face. The filling of the Shredder is visually controlled and the shredded material is disposed.

4. After the final weighing, the driver obtains a confirmation/the weighting bridge document before leaving the landfill site.

Information about waste producer, waste holder, car register number, incoming and outgoing weight of the lorry/waste, waste origin and type, delivery date, pre-treatment and necessary treatment (to be carried out at RWMC Celje) additional documentation are registered. The document as well as the Evidenčni list is recorded for five years as a paper version and in electronic format.

#### Basic characterisation

A basic characterisation has to be realised for industrial waste and for MSW. For each type of waste the form "Ocena Odpadka" has to be filled in and has to be delivered every year (requesting the detailed description of the waste and its generation as well as a chemical analysis (for industrial waste) or sorting analysis (for MSW)).

#### Compliance testing

The waste producer performs compliance testing once a year, for municipal waste every six months. Sampling has to be carried out for at least 2% of delivered waste. A certified expert takes the samples. Each



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year the basic characterisation form (Ocena Odpadka) is sent to the landfill site. This process covers compliance testing.

On-site verification

A visual inspection is performed when unloading at the active cell and when unloading for further treatment (e.g. at the MBT plant).

Expert proposals related to potential modifications of the WAC Decision

The limit values for the emissions of leachate seemed to be too low but can now be fulfilled by the new treatment (reverse osmosis).

The TOC limit values are too stringent as it is even difficult not to exceed the 18% in case of MSW after its treatment.

The limit value for biodegradability is too stringent. It is impossible to achieve the requirement of 50% biodegradation. It can be achieved only about 30% biodegradation.

## 1.12 Country Report Slovakia

The WAC Decision is only partly implemented by the Slovak legislation as there are referrals to specific paragraphs of the WAC Decision. However, major divergences could be identified as there is neither a general implementation of the WAC Decision (e.g. by referral) nor a definition of any of the criteria which have to be set by the Member States themselves.

Referrals to the Annex of the WAC Decision are explicitly mentioned for the following sections:

- Section 2.1
- Section 2.1.2
- Section 2.2
- Section 2.3.1
- Section 2.4

The referrals by which the WAC requirements are mainly incorporated are ambiguous and not fully clear as there are not always referrals to subsections where needed. This can lead to different interpretations of the legislation.

The divergences comprise the following aspects:

- The general waste acceptance procedure (i.e. basic characterisation, compliance testing, on-site verification) are not transposed;
- Partly ambiguous implementation, i.e. the referrals which are made to the WAC Decision are not always clear;
- No criteria for monolithic waste are set;
- Stable, non-reactive waste is divergently defined as stabilised hazardous waste;
- No PAH is set;
- No criteria for physical stability and bearing capacity are defined;
- Criteria for underground storage are not defined.

### 1.12.1 Legal assessment

Table 1.12-1 provides an overview on the legal documents transposing the WAC Decision requirements into national legislation. Furthermore the table shows a qualitative assessment of the level of implementation or possible divergences which are further explained and justified in the following Sections.

Slovakia			
Category	Corresponding national legislation	Implementation	Comments
1. Procedure		—	Not implemented.
1.1 Basic Characterisation		—	Not implemented.
1.1.1 Function		—	Not implemented.
1.1.2 Fundamental requirements		—	Not implemented.
1.1.3 Testing		—	Not implemented.
1.1.4. Cases where testing is not required		—	Not implemented.
1.2 Compliance Testing		—	Not implemented.
1.3 On-site verification		—	Not implemented.
2. Acceptance Criteria		~	No criteria for monolithic waste are set. Referrals made to the WAC Decision are ambiguous.
2.1 Landfills for inert waste	§25(2), footnote 23b) and §32(4), footnote 30a), Order No. 283/2001 Coll.	~	It is made referral to §2.1 of the WAC Decision. No criteria for monolithic waste are set. Specific and clear referrals to particular subsections/paragraphs are missing.
2.1.1 Short list	§25(2), footnote 23b), Order No. 283/2001 Coll.	—	Specific and clear referral to this subsection is missing.
2.1.2 Limit values	§25(2), footnote 23b) and §32(4), footnote 30a), Order No. 283/2001 Coll.	✓	It is referred I to §2.1.2 of the WAC Decision.
2.1.2.1 Leaching limit values	§25(2), footnote 23b), Order No. 283/2001 Coll.	—	Specific and clear referral to this subsection is missing.
2.1.2.2 Limit values for total content of organic parameters	§25(2), footnote 23b), Order No. 283/2001 Coll.	—	Specific and clear referral to this subsection is missing. The PAH is not set.
2.2 Landfills for non-hazardous waste	§32(5), footnote 30b), Order No. 283/2001 Coll.	~	It is referred to §2.2 of the WAC Decision. Specific and clear referrals to particular subsections/paragraphs are missing. No criteria for monolithic waste are set.
2.2.1 Without testing	§32(5), footnote 30b), Order No. 283/2001 Coll.	—	Specific and clear referral to this subsection is missing.
2.2.2 Limit values for non-hazardous waste	§32(5), footnote 30b), Order No. 283/2001 Coll.	—	Specific and clear referral to this subsection is missing.
2.2.3 Gypsum waste	§32(5), footnote 30b), Order No. 283/2001 Coll.	—	Specific and clear referral to this subsection is missing.
2.3 Criteria for hazardous waste acceptable at landfills		—	Specific and clear referral to this section/paragraph is missing as well as

Slovakia			
Category	Corresponding national legislation	Implementation	Comments
for non-hazardous waste, Art 6 c iii			referrals to its subsections.
2.3.1 Leaching limit values	§32(5), footnote 30c), Order No. 283/2001 Coll.	~	It is referred to §2.3.1 of the WAC Decision. No criteria for monolithic waste are set. Stable, non-reactive hazardous waste is only defined as stabilized hazardous waste.
2.3.2 Other criteria		—	Specific and clear referral to this subsection is missing.
2.3.3 Asbestos waste		—	Specific and clear referral to this subsection is missing.
2.4. Landfills for hazardous waste	§32(6), footnote 31a), Order No. 283/2001 Coll.	~	It is referred to §2.4 of the WAC Decision. No criteria for monolithic waste are set.
2.4.1 Leaching limit values	§32(6), footnote 31a), Order No. 283/2001 Coll.	—	Specific and clear referral to this subsection is missing.
2.4.2 Other criteria		—	Specific and clear referral to this subsection is missing.
2.5 Criteria for underground storage		—	Not implemented.

**Table 1.12-1: Implementation of WAC Decision requirements in Slovak Legislation**

### 1.12.1.1 *Legal framework*

The WAC Decision is implemented in the Slovak legislation by Order No. 283/2001 Coll. (hereinafter made referral to as Order 283/2001) and mainly by referrals to different sections of the WAC Decision.

The subcategories for landfill sites are the following:

- Inert waste landfill
- Non-hazardous waste landfill
- Hazardous waste landfill

### 1.12.1.2 *Acceptance Procedure*

#### Basic Characterisation

The basic characterisation is not implemented by Slovak legislation.

#### Compliance testing

Compliance testing is not implemented by Slovak legislation.

#### On-site verification

On-site verification is not implemented by Slovak legislation.

### 1.12.1.3 *Waste Acceptance Criteria*

Waste acceptance criteria are implemented for each of the three national landfill classes. However regulations for underground storage are not implemented by Slovak legislation.

No possible acceptance for higher limit values by the competent authorities is given by the national legislation of Slovakia.

In Slovak legislation sampling and testing standards are not specified. No test method is defined for the leaching limit values.

In addition no specific criteria for monolithic waste are stipulated.

#### Criteria for waste acceptable at landfills for inert waste

Criteria for waste acceptable at landfills for inert waste have been implemented correspondingly by §25(2), footnote 23b) and §32(4), footnote 30a) of the Order 283/2001. By the referrals which are indicated in the footnote especially §2.1 and the limit values of §2.1.2 of the WAC Decision are implemented. However no specific referrals to the other subsections of §2.1 of the WAC Decision are made.

The full set of the leaching limit values is accordingly implemented by a clear referral to the corresponding section within the WAC Decision.

The PAH value is not set.

Criteria for non-hazardous waste acceptable at landfills for non-hazardous waste

Criteria for waste acceptable at landfills for non-hazardous waste have been implemented correspondingly by §32(5), footnote 30a), Order 283/2001 as there is a referral to §2.2 of the WAC Decision.

However, specific referrals to subsections e.g. with regard to provisions for the disposal of gypsum waste are missing. Furthermore, no criteria for monolithic waste are defined.

Criteria for hazardous waste acceptable at landfills for non-hazardous waste

Criteria for waste acceptable at landfills for stable non-reactive hazardous waste are not fully implemented as the referral in §32(5), footnote 31a), Order 283/2001 only focuses on §2.3.1 of the WAC Decision. Therefore the leaching limit values are identically with the WAC requirements, but provisions for hazardous waste acceptable at landfills for non-hazardous waste are not defined compliantly (e.g. it is not clearly stipulated that asbestos waste has to be disposed of as set by the WAC Decision).

Furthermore, no criteria for monolithic waste are set and also the criteria for physical stability and bearing capacity are not provided.

In addition, stable, non-reactive waste is defined as stabilised hazardous waste.

Criteria for waste acceptable at landfills for hazardous waste

Criteria for waste acceptable at landfills for hazardous waste have been implemented correspondingly by §32(6) and the referral stipulated in footnote 31a), Order 283/2001 to §2.4 of the WAC Decision.

However specific and clear referrals to subsections are missing. Furthermore, no specific criteria for monolithic waste are defined.

Underground storage

Criteria for underground storage systems are not implemented.

### 1.12.2 Site visit

The organisation of the site visit has been realised in close cooperation with the Ministry of Environment (MoE) of Slovakia which recommended to visit the landfill Livinské Opatovce. In addition, two representatives of the MoE have participated in the site visit.

#### 1.12.2.1 *Site visit to representative inert waste, non-hazardous waste and hazardous waste landfill (Landfill of Livinské Opatovce class A, B and C)*

##### General Terms

The landfill site of Livinské Opatovce is located about 120 km northeast of Bratislava. The landfill is operated by Borina s.r.o. and both private and public owned. Borina s.r.o. belongs to the Danish company Marius Pederson, a.s. which holds in total 88 % of the landfill, the rest is owned by the regional municipality. Inert waste, non-hazardous waste and hazardous waste are disposed of at the landfill.

The landfill was set into regular operation in 1998 and was constructed in two phases until today. Each phase is envisaged to endure about ten years. The landfill area will be expanded by further phases as soon as necessary and shall be in operation at least until 2030.

The site comprises an area of 10.5 ha and has a total capacity of 1,000,000 m<sup>3</sup> of which 350,000 m<sup>3</sup> are used until today. In average, 30,000 m<sup>3</sup> of waste are landfilled per year.

The first phase is already closed. The active cells comprise currently one cell for non-hazardous waste and a second one for hazardous waste. In total the waste comes from 300 different clients.

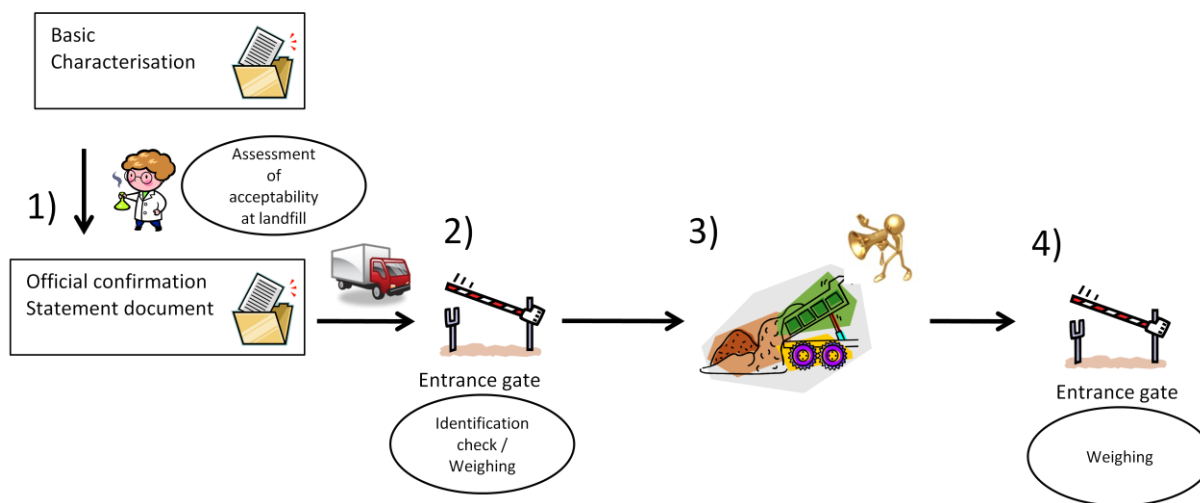
The major part of the delivered waste is residual household waste (~70-75 %) which is partly collected in own lorries from 23 municipalities (~100,000 inhabitants). Furthermore, non-hazardous industrial and commercial wastes are disposed of as well as uncontaminated soils.

The hazardous waste comprises in total 20 % of the total amount of landfilled waste. It consists mainly of contaminated soils and C&D wastes. Inert waste loads are accepted but they are only used as waste cover material. Furthermore, asbestos waste is accepted after treatment and landfilled together with non-hazardous waste. It is not disposed of in a separated cell nor accordingly packaged in big bags.

As the landfill site is not equipped with treatment facilities, hazardous waste has to be treated by the waste producer or other waste treatment companies in case it does not comply with the leaching limit values admissible for the different waste categories. In general, only pre-treated hazardous waste is accepted at the landfill of Livinské Opatovce.

In 2010 the construction of a biogas installation shall begin and the installation of CCTV in the entrance area is planned.

### Waste acceptance procedure



**Figure 1.12-1: Flow chart of the waste acceptance procedure at Livinski Opatovce (Slovakia)**

The landfill site is equipped with an electronic waste management system where all client and waste related data are registered.

1. First, the basic characterisation document (“Základný popis odpadu”) including among others waste producer address, transport company, EWC, waste quantity and composition, landfill class, physical properties, pre-treatment and signatures has to be filled in. For hazardous waste an additional document with the results of the chemical analysis is required. Samples are taken by external laboratories only.

After a waste is deemed to be acceptable at the landfill, the waste producer is informed by an official confirmation that the waste may be delivered to the landfill. For the transport, a statement document (“Čestné Prehlásenie”) has to be filled in by the waste producer. The document includes inter alia waste producer address, waste carrier address as well as waste type, its category and EWC and corresponding signatures. With this document the waste producer/holder declares that the delivered waste is the same as describe within the basic characterisation document (“Základný popis odpadu”).

2. The waste carrier is obliged to show the statement document (“Čestné Prehlásenie”) for each individual load. It is checked at the weighbridge when entering the landfill. Visual inspections at the entrance area are sometimes performed from the office of the weighing bridge and in case the lorry is not closed on top.

After weighing the load and controlling the statement document, the waste lorry is permitted to enter the site. The driver is informed by the weighing bridge operator how to proceed from the weighing bridge. Further orientation is provided by installed signals at the landfill site.

3. The waste is either disposed on the landfill for hazardous waste or on the landfill for non-hazardous waste including household waste. The deposition is normally controlled by a staff of the landfill



site. However during the landfill visit no person was present at the landfill for hazardous waste in order to control the deposition.

4. Before leaving the landfill site, the waste carrier passes again the weighbridge and is weighted for a second time.

The weighbridge document includes the information on date and time of entry/exit and weighbridge operator, vehicle registration details, customer/waste carrier details, incoming waste type, weight and on-site destination (i.e. non-hazardous waste landfill or hazardous waste landfill) as well as corresponding signatures of the weighbridge operator and the driver. The information is electronically recorded and printed. One paper version is given to the driver and a second one is stored in the landfill office between five and ten years.

#### Basic characterisation

Acceptance of waste is exclusively on the basis of a basic characterisation/compliance testing including chemical analysis only for hazardous waste (information data sheet). The basic characterisation has to be renewed in case the process in which the waste is generated changes, i.e. for a new type of waste.

Non-hazardous waste, asbestos waste and inert waste are accepted without chemical analysis.

#### Compliance testing

Compliance testing corresponds to the annual renewal of the basic characterisation including the full list of chemical analyses.

#### On-site verification

On-site verification consists of a visual inspection at the point of entry if the lorry is not closed on the top. Anyway the waste is controlled at the place of unloading from the dredging driver operator.

#### Expert proposals related to potential modifications of the WAC Decision

There are no proposals for the WAC Decision.

## 2 Annex II: Contact data and background documents

### 2.1 List of landfills visited

MS	Landfill site	Landfill address	Landfill type
BG	Regionalno depo sa otpadzi-Sewliewo OOD	5400 Sewliewo P.K. 41 Str. "Kownidolsko Chausse" 84	Hazardous, Non-hazardous
	Regionalno depo Ruse	Svoboda Place No. 6, 7000 Ruse	Hazardous, Non-hazardous, Inert
	Lukoil Neftohim Burgas AG	8104 Burgas, Bulgaria	Hazardous, Non-hazardous
CY	Koshi	Landfill site of Koshi	Non-hazardous
	Marathounda	Landfill site of Paphos	Non-hazardous
CZ	A.S.A. spol.s.r.o.	Prague, Ďáblická 791/89, CR-182 00 Praha 8	Non-hazardous
	SITA CZ a.s.	Němčice nad Hanou, Novosady 616,	Non-Hazardous, Hazardous
EE	PAikre	Põlendmaa, Paikuse vald, Pärnumaa 86603	Non-hazardous, Hazardous
HU	Győr Kommunális Szolgáltató Kft	9028. Győr, Külső Fehérvári út 1	Inert, Non-hazardous
	Saubermacher-Magyarország	Galgamacsa N 47°42'02.9" , E 19°26'22.9"	Hazardous
LT	Šiaulių regiono atliekų tvarkymo centras	P. Luksio g. 8, LT-76206 Šiauliai	Non-Hazardous
LV	ZAAO SW Landfill "Daibe"	Pārgauja County, Stalbe Parish, LV-4151-Latvia	Non-Hazardous
MT	WasteServ Malta Ltd	Phoenix Building, Old Railway Track, ST. Venera SVR 9022	Non-hazardous
PL	Orlen Eko SP. Z o.o.	ul. Chemików 7, 09-411 Płock	Hazardous
	Mława, Zakład Usług Komunalnych USKOM Sp. z o.o.,	Płocka 102, 06-500 Mława	Non-hazardous
	Eko Dolina Sp. z o.o.	Łężyce, Al. Parku Krajobrazowego 99 84-207 Koleczkowo	Non-hazardous
RO	Vivani Salubritate	Field 327/4 Parcel 11, Slobozia, County Ialomita (Soseaua Amara, km 4, DN 2C)	Inert, Non-hazardous, Hazardous
	SC Tracon SRL	Landfill of Cristian, Sibiu County	Non-hazardous
	A.S.A. Ecologic Services SRL	North Bypass, F N, Arad, Romania	Non-hazardous
SI	Simbio, d.o.o.	Teharska cesta 49, 3000 Celje	Non-hazardous
SK	Borina Ekos s.r.o.	Skládka Livinské Opatovce č. 86 956 32 Livinské Opatovce	Inert, Non-hazardous, Hazardous

Table 2.1-1: Identified landfill sites and landfill visits

## 2.2 Contact persons for assessment of legal compliance with the WAC Decision and landfill visits

Contact Persons							
MS	Landfill	Ministry or Organisation			Landfill		
		Contact Person	E-mail	Telephone	Contact Person	E-mail	Telephone
BG	Regionalno depozita otpadzi-Sewliewo OOD	Lina Patarchanova	l.patarchanova@moew.government.bg	+ 359 2 940 62 17	Jordan Georgier	Depo_sevlievo@abv.bg	+359 675/32881
	Regionalno depozit Ruse	Lina Patarchanova	l.patarchanova@moew.government.bg	+ 359 2 940 62 17	---	---	---
	Lukoil Neftohim Burgas AG	Lina Patarchanova	l.patarchanova@moew.government.bg	+ 359 2 940 62 17	Aleksiev Georgi	Aleksiev.Georgi@neftochim.bg	+359 5511 3196
CY	Landfill of Koshi	Michalis Pantis	mpantis@moi.gov.cy	+ 357 97772077	---	---	---
	Marathounda Landfill of Paphos	Michalis Pantis	mpantis@moi.gov.cy	+ 357 97772077	---	---	---
CZ	A.S.A. spol.s.r.o.	Jana Strihavková	jana.strihavkova@mzp.cz	+420-2-6712-2196	Libor Luňáček	lu@asa-cz.cz	+420 283 061 302
	SITA CZ a.s.	Jana Strihavková	jana.strihavkova@mzp.cz	+420-2-6712-2196	Petr Špičák	petr.spicak@sita.cz	+420 582 386 232
EE	PAikre	Robert Kiviselg	Robert.Kiviselg@envir.ee	+372 6262867	Teet Kurs	teet@paikre.ee	+ 372 44 55 765
HU	Győr Kommunális Szolgáltató Kft	Dr Hilda Farkas	farkash@mail.kvvm.hu	+36 1 4573570	Kovács Baranabás	komszol@komszol.hu	+36/96-516 602
	Saubermacher-Magyarország	Dr Hilda Farkas	farkash@mail.kvvm.hu	+36 1 4573570	Péter Horváth	p.horvath@saubermacher.hu	+36 - 1 - 296 1115
LT	Šiaulių regiono atliekų tvarkymo centras	Daiva Kazlauskienė	d.kazlauskiene@am.lt	+370 5 266 3513	Raimundas Jakutis	r.jakutis@sratc.lt	+ 370 (8-41) 52 00 02
LV	ZAAO SW Landfill "Daibe"	Ilze Donina	ilze.donina@vidm.gov.lv	+ 371 6 702 6515	Ingrida Gubernatorova	ingrida@zaao.apollo.lv	+ 371 642 81 250
MT	WasteServ Malta Ltd	Kim Vella	kim.vella@gov.mt	+ 356 22 915 047	Henriette Putzulu Caruana	hdebono@wasteservmalta.cm	+356 2385 8000
PL	Orlen Eko SP. Z o.o.	Piotr Manczarski	pmancz@is.pw.edu.pl	+48 601 259418	Zbigniew Czempiński	zbigniew.czempinski@orlen.pl	+ 48 24 365 35 91

Contact Persons							
MS	Landfill	Ministry or Organisation			Landfill		
		Contact Person	E-mail	Telephone	Contact Person	E-mail	Telephone
	Mława, Zakład Usług Komunalnych USKOM Sp. z o.o.,	Piotr Manczarski	pmancz@is.pw.edu.pl	+48 601 259418	Adam Godzwa	godzwa@uskom.org	+ 48 23 655-22-44
	Eko Dolina Sp. z o.o.	Piotr Manczarski	pmancz@is.pw.edu.pl	+48 601 259418	Prezes Sabina Kowalska	sabina.kowalska@ekodolina.pl	+48 58 672-50-00
RO	Vivani Salubritate	Cristiana Neagu	Cristianan.neagu@mmediu.ro	+ 40 21 319 25 32	Cezar Zamfir	cezar.zamfir@vivani-deseuri.ro	+40 755 032 934
	SC Tracon SRL	Cristiana Neagu	Cristianan.neagu@mmediu.ro	+ 40 21 319 25 32	Gina Cireasa	Tracon.mediu@gmail.com	+40 74204589 1
	A.S.A. Ecologic Services SRL	Cristiana Neagu	Cristianan.neagu@mmediu.ro	+ 40 21 319 25 32	Roxana Stoica	Roxana.stoica@asa-group.ro	+40 749 522 792
SI	Simbio, d.o.o.	Dr Lucija Jukić Soršak	Lucija.Jukic-Sorsak@gov.si	+386 1 478 74 70	Milka Leskošek	Milka.leskosek@simbio.si	+386 3425 6451
SK	Borína s.r.o.	Stanislava Kucejová	stanislava.kucejova@enviro.gov.sk	+421 918 669 864	Janka Oravkinová	oravkinova.j@mariuspedersen.sk	+421 902 999 449

Table 2.2-1: Landfill details

### 3 Annex III: Questionnaire

#### QUESTIONNAIRE

**related to „Assessing compliance with and implementation of the waste acceptance criteria and procedures by the EU-15” on behalf of the European Commission, DG Environment**

##### **1 Aim of the questionnaire**

The aim of the questionnaire is to provide relevant info to the consultants under the framework of the project explained in the recommendation letter that the Commission has signed.

##### **2 Background information**

The waste criteria acceptance Decision 2003/33/EC came into force in December 2002 and establishes criteria and procedures for the acceptance of waste in landfills. This Decision entered into force in July 2004 and the requirements laid down had to be applied by 16 July 2005.

The objectives of the questionnaire are:

- To obtain Information about the grade of implementation of the waste acceptance criteria legislation
- To gather the relevant national legislation concerning the implementation of the waste acceptance criteria legislation
- To collect data about chosen parameters that shall be determined from each Member State separately (e.g. period of record keeping, test methods).

### 3 Introduction on using the questionnaire

We have developed this questionnaire in a way that allows answering in a time saving and efficient way. The questionnaire is using this electronic version.

The fields where input is desired are in gray. Some of these are text fields where written input is wanted, others are checked which can be activated or disabled with a mouse-click.

If a question is unclear or if you desire to discuss a certain aspect please do not hesitate to contact us:

Dr. Peter Hofbauer  
BiPRO GmbH  
Tel: +49-89-18979050  
Fax: +49-89-18979052  
E-mail: [Peter.Hofbauer@bipro.de](mailto:Peter.Hofbauer@bipro.de)

We intend to contact you in order to discuss open questions or specific topics after having received your completed questionnaire. You may also indicate in the questionnaire if you would like to discuss a certain point with us.

We would kindly ask you to return even incomplete forms if some questions cannot be answered.

### 4 Returning the completed questionnaire

**Please return the completed questionnaire to [Peter.Hofbauer@bipro.de](mailto:Peter.Hofbauer@bipro.de).**

It would be very helpful if we could receive feedback before Christmas 19 December 2008 (the ultimate deadline for feedback is 15 January).

## Questionnaire

### 1 Procedure

#### 1.1 Basic Characterisation

##### 1.1.1 Functions of basic characterisation

The functions of basic characterisation are listed in section 1.1.1. of the Annex to the EU Waste Acceptance Criteria Decision 2003/33/EC (hereinafter referred to as WAC Decision) <sup>1</sup> :			
Are the functions of basic characteristic implemented in the national legislation according to 2003/33/EC?		Please name the legal document and corresponding paragraph.	
Yes	<input type="checkbox"/>	Exceeded	<input type="checkbox"/>
No	<input type="checkbox"/>	Partial	<input type="checkbox"/>
[ ]			

##### 1.1.2 Fundamental requirements for basic characterisation of the waste

There are fundamental requirements for basic characterisation of the waste which are listed in section 1.1.2. of the Annex to the WAC Decision:			
Are the fundamental requirements for basic characterisation implemented in the national legislation according to the Annex to the WAC Decision?		Please name the legal document and corresponding paragraph.	
Yes	<input type="checkbox"/>	Exceeded	<input type="checkbox"/>
No	<input type="checkbox"/>	Partial	<input type="checkbox"/>
[ ]			

##### 1.1.3 Testing

In general wastes must be tested for basic characterisation. The testing is listed in 1.1.3 of the Annex to the WAC Decision:			
Is the testing of waste for the basic characterisation implemented in the national legislation according to the Annex to the WAC Decision?		Please name the legal document and corresponding paragraph.	
Yes	<input type="checkbox"/>	Exceeded	<input type="checkbox"/>
No	<input type="checkbox"/>	Partial	<input type="checkbox"/>
[ ]			

<sup>1</sup> Council Decision 2003/33/EC of 19 December 2002 establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC (OJL 11, 16.1.2003, p. 27)

### 1.1.4 Cases where testing is not required

Testing for characterisation can be dispensed in cases according to section 1.1.4. of the Annex to the WAC Decision	
Are the cases mentioned above implemented in the national legislation according to the Annex to the WAC Decision?	Please name the legal document and corresponding paragraph.
Yes <input type="checkbox"/> Exceeded <input type="checkbox"/> No <input type="checkbox"/> Partial <input type="checkbox"/>	<input type="text"/>
What is the period of time the operator shall keep record of the basic characterisation information?	<input type="text"/>

### 1.2 Compliance testing

Compliance testing is to periodically check regular arising waste streams and is described in section 1.2. of the Annex to the WAC Decision	
Is compliance testing implemented in the national legislation according to the Annex to the WAC Decision?	Please name the legal document and the corresponding paragraph.
Yes <input type="checkbox"/> Exceeded <input type="checkbox"/> No <input type="checkbox"/> Partial <input type="checkbox"/>	<input type="text"/>
What is the period of time the test results of compliance testing shall be kept?	<input type="text"/>

### 1.3 On site verification

Online verification is the visual inspection before and after unloading, and the corresponding documentation is described in section 1.3. of the Annex to the WAC Decision	
Is online verification implemented in the national legislation according to the WAC Decision?	Please name the legal document and corresponding paragraph.
Yes <input type="checkbox"/> Exceeded <input type="checkbox"/> No <input type="checkbox"/> Partial <input type="checkbox"/>	<input type="text"/>
What are the testing requirements for onsite verification?	<input type="text"/>
Are any rapid test methods defined?	<input type="text"/>



## 2 Waste acceptance criteria

In certain circumstances, higher limit values for specific values listed in section 2 of the Annex to the WAC Decision can be accepted	
Is the reporting of permits for the acceptance of higher values implemented in the national legislation according to the WAC Decision?	Please name the legal document and corresponding paragraph.
Yes <input type="checkbox"/> Exceeded <input type="checkbox"/> No <input type="checkbox"/> Partial <input type="checkbox"/>	<input type="text"/>
Please name the legal document and corresponding paragraph of: The implementation of the criteria for compliance with the limit values set out in section 2 of the Annex to the WAC Decision	<input type="text"/>

### 2.1 Criteria for landfills for inert waste

#### 2.1.1 List of waste acceptable at landfills for inert waste without testing

Waste acceptable at landfills for inert waste without testing is listed in section 2.1.1 the Annex to the WAC Decision	
Is the list for waste acceptable at landfills for inert waste without testing implemented in the national legislation according to the WAC Decision?	Please name the legal document and corresponding paragraph.
Yes <input type="checkbox"/> Exceeded <input type="checkbox"/> No <input type="checkbox"/> Partial <input type="checkbox"/>	<input type="text"/>

#### 2.1.2 Limit values for waste acceptable for inert waste

##### 2.1.2.1 Leaching limit values

Test methods from section 3 and limit values from section 2.1.2.1. of the Annex to the WAC Decision shall be determined for the leaching limit values of inert waste.	
Are the above mentioned determinations for the leaching limit values implemented in the national legislation according to the WAC Decision?	Please name the legal document and corresponding paragraph.
Yes <input type="checkbox"/> Exceeded <input type="checkbox"/> No <input type="checkbox"/> Partial <input type="checkbox"/>	<input type="text"/>

### 2.1.2.2 Limit values for total content of organic parameters

Inert waste must meet limit values according to section 2.1.2.2. of the Annex to the WAC Decision.	
Are the above mentioned limit values implemented in the national legislation according to the WAC Decision?	Please name the legal document and corresponding paragraph.
Yes <input type="checkbox"/> Exceeded <input type="checkbox"/> No <input type="checkbox"/> Partial <input type="checkbox"/>	<input type="text"/>

## 2.2 Criteria for landfills for non-hazardous waste

### 2.2.1 Waste acceptable at landfills for non-hazardous waste without testing

Municipal waste according to section 2.2.1. of the Annex to the WAC Decision admitted without testing at landfills for non-hazardous waste	
Is the admission for landfilling of municipal waste at landfills for non-hazardous waste without testing implemented in the national legislation according to the WAC Decision?	Please name the legal document and corresponding paragraph.
Yes <input type="checkbox"/> Exceeded <input type="checkbox"/> No <input type="checkbox"/> Partial <input type="checkbox"/>	<input type="text"/>

### 2.2.2 Limit values for non-hazardous waste

Test methods from section 3 and limit values from section 2.2.2. of the Annex to the WAC Decision shall be determined for the leaching limit values of granular non-hazardous waste.	
Are the above mentioned limit values implemented in the national legislation according to the WAC Decision?	Please name the legal document and corresponding paragraph.
Yes <input type="checkbox"/> Exceeded <input type="checkbox"/> No <input type="checkbox"/> Partial <input type="checkbox"/>	<input type="text"/>
Please name the legal document and corresponding paragraph of: Setting of criteria for monolithic waste to provide the same level of environmental protection as given for granular non-hazardous waste.	<input type="text"/>

### 2.2.3 Gypsum waste

Gypsum based materials shall be disposed according to section 2.2.3. of the Annex to the WAC Decision	
Is the implemented in the national legislation according to the WAC Decision?	Please name the legal document and corresponding paragraph.
Yes <input type="checkbox"/> Exceeded <input type="checkbox"/> No <input type="checkbox"/> Partial <input type="checkbox"/>	<input type="text"/>

### 2.3 Criteria for hazardous waste acceptable for non-hazardous waste pursuant to Article 6(c)(iii)

#### 2.3.1 Leaching limit values

Test methods from section 3 and limit values from section 2.3.1. from the Annex to the WAC Decision shall be determined for the leaching limit values of granular hazardous waste.	
Are the above mentioned limit values implemented in the national legislation according to the WAC Decision?	Please name the legal document and corresponding paragraph.
Yes <input type="checkbox"/> Exceeded <input type="checkbox"/> No <input type="checkbox"/> Partial <input type="checkbox"/>	<input type="text"/>
Please name the legal document and corresponding paragraph of: Setting of criteria for monolithic waste to provide the same level of environmental protection as given for granular hazardous waste.	<input type="text"/>

#### 2.3.2 Other criteria

Granular hazardous waste must meet criteria according to section 2.3.2. to the Annex of the WAC Decision.	
Are the above mentioned criteria implemented in the national legislation according to the WAC Decision?	Please name the legal document and corresponding paragraph.
Yes <input type="checkbox"/> Exceeded <input type="checkbox"/> No <input type="checkbox"/> Partial <input type="checkbox"/>	<input type="text"/>
Please name the legal document and corresponding paragraph of: a) Setting of criteria to ensure that the waste will have sufficient physical stability and bearing capacity. b) Setting of criteria to ensure that hazardous monolithic wastes are stable and non-reactive before accepted in landfills for non-hazardous waste.	a) <input type="text"/> b) <input type="text"/>

#### 2.3.3 Asbestos waste

Construction materials containing asbestos and other suitable asbestos waste may be landfilled at landfills for non-hazardous waste in accordance with section 2.3.3. of the Annex to the WAC Decision	
Are the above mentioned landfilling terms for constructing materials implemented in the national legislation according to the WAC Decision?	Please name the legal document and corresponding paragraph.
Yes <input type="checkbox"/> Exceeded <input type="checkbox"/> No <input type="checkbox"/> Partial <input type="checkbox"/>	<input type="text"/>

## 2.4 Criteria for waste acceptable at landfills for hazardous waste

### 2.4.1 Leaching limit value

Test methods from section 3 and limit values from section 2.4.1. of the Annex to the WAC Decision shall be determined for the leaching limit values of granular waste acceptable at landfills.	
Are the above mentioned limit values implemented in the national legislation according to the WAC Decision?	Please name the legal document and corresponding paragraph.
Yes <input type="checkbox"/> Exceeded <input type="checkbox"/> No <input type="checkbox"/> Partial <input type="checkbox"/>	<input type="text"/>
Please name the legal document and corresponding paragraph of: Setting of criteria for monolithic waste to provide the same level of environmental protection as given for granular waste acceptable at landfills.	<input type="text"/>

### 2.4.2 Other criteria

Granular hazardous waste must meet criteria according to section 2.4.2. of the Annex to the WAC Decision .	
Are the above mentioned criteria implemented in the national legislation according to the WAC Decision?	Please name the legal document and corresponding paragraph.
Yes <input type="checkbox"/> Exceeded <input type="checkbox"/> No <input type="checkbox"/> Partial <input type="checkbox"/>	<input type="text"/>

## 2.5 Criteria for underground storage

The acceptance of underground storage must meet the requirements according to section 2.5. of the Annex to the WAC Decision.	
Are the above mentioned requirements implemented in the national legislation according to the WAC Decision?	Please name the legal document and corresponding paragraph.
Yes <input type="checkbox"/> Exceeded <input type="checkbox"/> No <input type="checkbox"/> Partial <input type="checkbox"/>	<input type="text"/>

## 3 Guidance documents

Do Guidance documents concerning Waste acceptance criteria exist?	Yes <input type="checkbox"/> No <input type="checkbox"/>
If these Guidance documents are publicly available; please add a source to look for	<input type="text"/>

Nation				
Category		Corresponding national legislation	identical	divergent
1. Procedure				
	1.1 Basic characterisation			
	1.1.1 Function of basic characterisation			
	1.1.2 Fundamental requirements for basic characterisation			
	1.1.3 Testing			
	1.1.3 Cases where testing is not required			
	1.2 Compliance testing			
	1.3 On-site verification			
2. Acceptance criteria				
	2.1 Landfills for inert waste			
	2.1.1 Short list			
	2.1.2 Limit values			
	2.1.2.1 Leaching limit values			
	2.1.2.2 Limit values for total content of organic parameters			
	2.2 Landfills for non-hazardous waste			
	2.2.1 Without testing			
	2.2.2 Limit values for non-hazardous waste			
	2.2.3 Gypsum waste			
	2.3 Criteria for hazardous waste acceptable at landfills for non-hazardous waste, Article 6 c iii			
	2.3.1 Leaching limit values			
	2.3.2 Other criteria			
	2.3.3 Asbestos waste			
	2.4. Landfills for hazardous waste			
	2.4.1 Leaching limit values			
	2.4.2 Other criteria			
	2.5 Criteria for underground storage			

**Table 2.2-2: Standardised table for assessment of implementation**

WAC Decision	Detailed questions to be clarified during site visit if not before	
1.1.1 / 1.1.2.	1. What is the sampling procedure? (sampling plan)	
1.1.3.	2. How is compositional range and variability determined? How is differentiated between regularly arising wastes from one and several installations? 3. What is the sampling plan drawn up?	
1.1.4.	4. Which are the waste types where the exemption from testing requirements is applied?	
1.2.	5. What is the sampling procedure? 6. Which methods are applied for compliance testing? 7. What testing frequency is used?	
1.3	8. What are the testing requirements for on-site verification? 9. Which, if any, rapid test methods are available and used?	
2	10. What are the criteria set for compliance with limit values? 11. What are the substances and settings where the exemption of 3 times the limit value is applied? 12. Which of the test methods and limit values are used? 13. Which are the criteria set for monolithic waste to provide same level of environmental protection than for granular waste? 14. Which limits and criteria are applied for different subcategories of class B landfills? 15. Which are the criteria set to ensure stability and non-reactivity, sufficient physical stability and bearing capacity? 16. How is the disposal of gypsum waste? 17. How is the disposal of asbestos waste practically performed; what are the consequences for the geological barrier? 18. What criteria are set in addition to the WAC DECISION requirements? 19. Who is storage organised until analysis results are available? 20. How is authorised to do the sampling - testing? 21. How is the quality assurance organised? 22. Which specific test and sampling standards are applied? 23. Etc.	(for all landfill classes)

**Table 2.2-3: Questions related to practical enforcement of legal requirements of the WAC Decision**

Contacts with the different ministries of the EU-12		
MS	Contact Person	Institution
Bulgaria	Olya Matova	Ministry of Environment and Water, Waste management department
Cyprus	Michalis Pantis	Ministry of Interior, Chief Inspectorate
Czech Republic	Jana Střihavková	Ministry of Environment, Waste Management Department
Estonia	Robert Kiviselg	Ministry of Environment, Waste Division
Hungary	Dr Hilda Farkas	Ministry of Environment and Water, Waste Management Department
Lithuania	Daiva Kazlauskienė	Ministry of Environment, Management Strategy Division Waste Department
Latvia	Ilze Donina	Ministry of Environment, State Environmental Service
Malta	Kevin Mercieca	Government of Malta, Malta Environment and Planning Authority, Environment Planning Directorate
Poland	Dr. Beata B.Klopotek	Ministry of the Environment, Department of Waste Management
Romania	Cristiana Neagu	Ministry of Environment and Forest, Direction of Waste Management and hazardous Substances, Waste Management Unit
Slovenia	Dr Lucija Jukić Soršak	Ministry of Environment and Spatial Planning, Environment Directorate
Slovakia	Dr Marcela Pokusová	Ministry of Environment, Waste Management Department

**Table 2.2-4: Competent contact persons for landfill of waste in National authorities of Member States**

WAC DECISION procedure and criterion	Parameter for decision on equivalency and implementation & additional interesting issues to discuss
1.1. Basic characterisation	Intention and text transposed into national legislation?
1.1.1. Functions	Intention and text transposed into national legislation?
1.1.2. Fundamental requirements	Intention and text transposed into national legislation? Concrete requirements, documentation form
1.1.3. Testing	Intention and text transposed into national legislation? Specific testing requirements for regularly arising wastes to show range and variability of characteristic properties
1.1.4. Testing is not required	Intention and text transposed into national legislation? Specific interpretation of (b) and (c)
1.2. Compliance testing	Intention and text transposed into national legislation? <ul style="list-style-type: none"> <li>Which approach is taken and which methods are used for compliance testing?</li> <li>What frequency is requested?</li> <li>How is checking for compliance with basic characterisation information other than testing ensured?</li> <li>What period is set for record keeping?</li> </ul>
1.3. On-site verification	Intention and text transposed into national legislation? What requirements are set for on-site verification? Are there rapid test methods defined?
2. Waste acceptance criteria	Intention and text transposed into national legislation? <ul style="list-style-type: none"> <li>Higher limit values accepted?</li> <li>Permits issued under this provision?</li> <li>Criteria for compliance with limit values?</li> </ul>
2.1. Landfills for inert waste	Intention and text transposed into national legislation? Practical enforcement of "in case of suspicion/if there is a doubt .. testing should be applied" Verification of "selected C&D waste"
2.1.2. Limit Values	Intention and text transposed into national legislation?
Leaching limits	Which test methods and limit values are to be used?
Limits for total content of organic parameters	Limit values for PAHs
2.2 Landfills for non-hazardous waste	Intention and text transposed into national legislation? Practical enforcement of acceptance procedure for wastes acceptable without testing (MSW, separately collected fractions, same materials from other sources) including "subject to prior treatment" and "contaminated to an extend .."? Subcategories of landfill for non-hazardous waste? Related limit values and acceptance criteria?.
2.2.2. Limit Values	Intention and text transposed into national legislation? Which test methods and limit values are to be used? Criteria for monolithic waste
2.2.3. Gypsum Waste	Intention and text transposed into national legislation?
2.3. Hazardous waste acceptable at landfills for non-hazardous waste, Article 6 (c)(iii)	Intention and text transposed into national legislation?
2.3.1. Leaching limits	Intention and text transposed into national legislation? Which test methods and limit values are to be used? Criteria for monolithic waste
2.3.2. Other criteria	Intention and text transposed into national legislation? Criteria for physical stability, for bearing capacity, for stability and non-reactivity of monolithic waste?
2.3.3. Asbestos waste	Intention and text transposed into national legislation? (Further specifications? Concrete enforcement?)



WAC DECISION procedure and criterion	Parameter for decision on equivalency and implementation & additional interesting issues to discuss
2.4.Landfills for hazardous waste	Intention and text transposed into national legislation?
2.4.1.Leaching limits	Intention and text transposed into national legislation?
	Which test methods and limit values are to be used?
	Criteria for monolithic waste
2.4.2.Other criteria	Intention and text transposed into national legislation?
2.5.Underground storage	Intention and text transposed into national legislation?( including Annex A)
.	<ul style="list-style-type: none"> <li>• Specification of requirements for site specific safety assessment</li> <li>• List of excluded wastes</li> <li>• Lists of wastes acceptable</li> <li>• Procedural requirements for secure separation from mining activities, classification in groups of compatibility etc</li> </ul>
Sampling and test methods	Intention and text transposed into national legislation?
	Sampling plan?
	Test methods and standards used

**Table 2.2-5: Overview on parameter relevant for analysis of implementation and other interesting issues to discuss**

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