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**1.0 ABBREVIATIONS USED IN DOCUMENTATION**

<b>GCL</b>	Geosynthetic Clay Liner
<b>GRA</b>	Gas Risk Assessment
<b>HGA</b>	Hydrogeological Risk Assessment
<b>NA</b>	Not Applicable
<b>SMS</b>	Site Management System Document
<b>SRA</b>	Stability Risk Assessment

**2.0 LIST OF AMENDED DRAWINGS (ALL)**

	<b>DRAWING TITLE</b>	<b>DRAWING No.</b>	<b>DWG. REFERENCE</b>
1	SITE LOCATION	ZW001A/004	General
2	INFILLING PHASES/VOLUMES	ZW002/04	General
3	GEOLOGICAL SETTING	ZW003/04	General
4	FINAL LANDFORM	ZW004/04	Stability Risk Assessment
5	FINAL LANDFORM/ POST-SETTLEMENT	ZW004A/04	General
6	HYDROGEOLOGICAL MODEL	ZW005/04	HG Risk Assessment
7	GROUNDWATER RECEPTORS LOCATION	ZW005A/04	HG Risk Assessment
8	ZWEJRA GROUND LEVELS	ZW005B/04	HG Risk Assessment
9	ZWEJRA POTENTIOMETRIC GRADIENT	ZW005C/04	HG Risk Assessment
10	WIND ROSE	ZW006/04	Gas Risk Assessment
11	RETAINING WALL DETAILS	ZW007/04	Stability Risk Assessment
12	ENVIRONMENTAL MONITORING POINTS	ZW008/04	General
13	GAS COMPOUND LOCATION/ DETAILS	ZW009/04	Gas Risk Assessment
14	GAS WELL CROSS-SECTION	ZW010/04	Gas Risk Assessment
15	LINING ENGINEERING DETAILS	ZW011/04	Stability Risk Assessment
16	CAPPING DETAILS	ZW012/04	General
17	CAPPING CONCEPTUAL MODEL	ZW012A/04	General
18	IMPACT RECEPTORS	ZW013/04	General
19	GAS/LEACHATE MONITORING POINTS	ZW014/04	General
20	CELL CONSTRUCTION DETAILS	ZW2/04	General

### 3.0 JUSTIFICATION FOR USE OF SELECTED LINER

The selection of liners was conducted on the basis of following criteria:

- laboratory analysis
- empirical analysis
- observations on the site
- modeling
- consultations

The composite lining system for the Ta' Zvejra non-hazardous landfill cells was carefully chosen to suit the purpose in particular local conditions. In principle the lining system can be divided into three types depending on its position and role:

1. basal lining system
2. side slope system
3. surface sealing system

The main purpose of basal liners are to provide a 'impermeable' layer to collect the liquid phase of waste so called : the leachate. Projected level of leachate head at the base of Zvejra landfill is 0.5 m. Geo-membrane of HDPE with minimum thickness of 2 mm is standard practice and ordinary element of Leachate collection system. Geo-textile was chosen as protection liner for the membrane. Granular mineral aggregate was the obvious choice for drainage layer to serve as to flow the leachate towards collection point.

Geological barrier is crucial element of environmental protection. On the basis of laboratory analysis it was found that 0.5 m thick layer of soft limestone fines compacted till the maximum relative density and optimum moisture content can provide sufficient attenuation properties. The reinforcing element of GCL is chosen to improve permeability feature.

Slope lining system was proposed to consist of geological barrier as per basal lining system. On the basis of site monitoring data, leachate balance analysis, laboratory analysis and consultation process it was found that the best option is lining the side slopes with mineral liner (compacted limestone fines till maximum relative density and optimum moisture content) and reinforcing it with Geo-composite clay liner. It was not expected any lateral water or gas pressure to exhibit on such a liner since leachate collection system and gas collection system would prevent it.

Capping system was designed on the similar principle as for side slopes with introduction of Geocomposite drainage liner to serve for better distribution of gas flow. It has pro-active role together with Geo-composite clay liner to physically isolate the waste from environment and provide multi functional barrier system for prevention of escape of gas and infiltration of precipitation.

#### **4.0 JUSTIFICATION FOR USE OF SELECTED MODELS AND SOFTWARE**

Most of the software used for Ta' Zvejra risk assessments is specifically designed and approved for such applications. The main reason for selecting this methodology and modeling follow the same philosophy as that for the interim landfill application at Qrendi. Since most of the construction elements are just transferred to the new site of Ta' Zvejra therefore even some software digital outputs are used for new application. Cell geometry and materials proposed for site at Qrendi and Ta' Zvejra are identical then for some cross sections the output data was applied in new application.

## 5.0 HABITATS RISK ASSESSMENT

The area for the proposed facility is located within the boundary of the area formerly delimited for waste management activities within Maghtab. The area was identified to consist of predominantly stabilized waste. This material was excavated and screened to produce clean material for re-use as daily cover during the final phases of waste deposit at the former Maghtab waste deposit site. Access to the site is gained directly from the Coast Road.

The area comprising the proposed development has been disused for several years. The site was used for the deposit of predominantly inert wastes. A detailed study of the area indicated the site consisted predominantly of stabilised waste.

On 30 April 2004 a non-hazardous waste, storage, treatment and transfer facility started to be operated at this site. The site was engineered in such a manner so as to be compliant with all the requirements of legal notice 168 of 2002 Waste Management (Landfill) Regulations and Directive 1999/33/EC on the landfill of waste.

The area in the vicinity of the site is predominantly used for agricultural purposes, although fields on the north-eastern and southern sides of the site. An area of garigue is present at Xaghret Franklin to the west of the site. Another small area of garigue lies at Il-Ghoqod beyond which lies the main coast road from St. Julian's to St. Paul's Bay.

The development involves the removal of some material and some minor excavations of the substratum to ensure a gradual natural slope of at least 1:50 for the collection of leachate produced from the deposited waste.

During the past months, two ecological surveys were conducted on the areas in the immediate vicinity of the area of the proposed facility. These surveys were conducted as part of the Scott Wilson study and the preparation of an Environmental Impact Assessment in connection with the development of a complex of waste management facilities at Ghallis Ta' Gewwa.

Study references:

- Scott Wilson: Stage 2 Report, Appendix H (February 2003) (additional documents provided)
- SLR, Draft Environmental Statement: Section 9 (November 2004) (additional documents provided)

## **6.0 AREAS OF NATURAL OR CULTURAL HERITAGE**

A survey of archaeological remains and historical and cultural features lying in the immediate surroundings of the site of the proposed facility was conducted as part of the preparation of an Environmental Impact Assessment in connection with the development of a complex of waste management facilities at Ghallis Ta' Gewwa.

The findings of the survey are included in SLR, Draft Environmental Statement: Section 17 (November 2004) (additional documents provided).

## 7.0 MONITORING PROGRAMME

Table 1: Monitoring programme for groundwater

<b>FREQUENCY</b>	Quarterly
<b>NUMBER OF BOREHOLES</b>	5 [Ref: Drawing – ZW008/04]
<b>SAMPLING PROCEDURE</b>	ISO 5667 Part II, 1993: Sampling Groundwaters
<b>EQUIPMENT</b>	Solinst Portable Bladder Pump
<b>PARAMETERS TO BE MONITORED</b> [As per requirements of the Waste Management (Landfill) Regulations 2002 and control/trigger levels derived]	Metals (As, Ba, Cd, Cr, Cu, Hg, Mo, Ni, Pb, Sb, Se, Zn)  Ammoniacal nitrogen  Chloride  Fluoride  Sulphate  pH  Conductivity  Naphthalene  Toluene  Phenol Index  Total organic carbon



Table 2: Monitoring programme for surface water

<b>FREQUENCY</b>	Quarterly
<b>NUMBER OF POINTS</b>	NA
<b>SAMPLING PROCEDURE</b>	Not applicable
<b>EQUIPMENT</b>	Not applicable
<b>PARAMTERS TO BE MONITORED</b>	Metals (As, Ba, Cd, Cr, Cu, Hg, Mo, Ni, Pb, Sb, Se, Zn) Ammoniacal nitrogen Chloride Fluoride Sulphate pH Conductivity Naphthalene Toluene Phenol Index Total organic carbon

Table 3: Monitoring programme for leachate

<b>FREQUENCY</b>	QUARTERLY
<b>NUMBER OF POINTS</b>	4
<b>SAMPLING PROCEDURE</b>	Not applicable
<b>EQUIPMENT</b>	Not applicable
<b>PARAMTERS TO BE MONITORED</b>	Metals (As, Ba, Cd, Cr, Cu, Hg, Mo, Ni, Pb, Sb, Se, Zn) Ammoniacal nitrogen Chloride Fluoride Sulphate pH

	Conductivity
	Naphthalene
	Toluene
	Phenol Index
	Total organic carbon

Table 4: Monitoring programme for landfill gas

<b><i>FREQUENCY</i></b>	Weekly
<b><i>NUMBER OF LOCATIONS</i></b>	11 [Ref: Drawing ZW014/04]
<b><i>SAMPLING PROCEDURE</i></b>	Not applicable
<b><i>EQUIPMENT</i></b>	GA 94 hand held landfill gas monitor
<b><i>PARAMTERS TO BE MONITORED</i></b>	Methane Carbon monoxide Hydrogen sulphide Carbon dioxide Oxygen Pressure Temperature

Table 5: Monitoring programme for ambient air quality

<b><i>FREQUENCY</i></b>	Monthly
<b><i>NUMBER OF LOCATIONS</i></b>	1
<b><i>SAMPLING PROCEDURE</i></b>	<p>Compendium method TO-9A (US EPA) &amp; Scott Wilson Study</p> <p>High volume sampler to be operated continuously over a 7-day period. Quartz microfibre filter to be changed daily and weighed to calculate daily average concentrations of total suspended particles (TSP) in air. PUF plug to be left in the sampling unit for the whole 7-day period.</p>
<b><i>EQUIPMENT</i></b>	Pacwill Environmental TE-1000 Poly Urethane Foam Sampler
<b><i>PARAMTERS TO BE MONITORED</i></b>	<p>PUF plug + quartz microfibre filters:</p> <ul style="list-style-type: none"> <li>• Dioxins [PCCD/Fs as both speciated and EC/NATO/CCMS/I-TEQ concentrations]</li> <li>• PAHs [naphthalene, acenaphthylene, fluorine, phenanthrene, anthracene, fluoranthene, pyrene, benza(a)anthracene, chrysene, benzo(b/k)fluoranthene, benzo(a)pyrene, indeno(123cd)pyrene, dibenzo(ah)anthracene, benzo(ghi)perylene]</li> </ul> <p>quartz micro-fibre filters:</p> <p>Heavy metals [As, Cd, Co, Cr, Cu, Hg, Mn, Pb, Ni, Sb, Se, Sn, Th, V].</p>

## **8.0 CONTROL AND TRIGGER LEVELS**

### **8.1 GROUNDWATER**

#### **8.1.1 Control Levels**

Control levels are specific assessment criteria relating to groundwater or other relevant parameters that are used to determine whether a landfill is performing as designed. They are intended to draw the attention of site management and the relevant authorities to the development of adverse or unexpected trends in the monitoring data. Such trends may result from failure of site engineering or management, or from variations between actual conditions and those assumed within the conceptual model. Control levels should be treated primarily as an early warning system to enable appropriate investigative or corrective measures to be implemented, particularly where a Trigger Level might be breached.

A well-planned method of assessment will thus assist to

- Protect the environment and thereby avoid breaches of Trigger Levels;
- Provide clarity and avoid ambiguity when Trigger Level conditions are breached.

#### **8.1.2 Trigger Levels**

Trigger levels are specific compliance levels or regulatory standards, the nature of which should be stipulated within an IPPC permit. They are defined as the criteria at which significant adverse environmental effects and/or breaches of legislation have occurred.

#### **8.1.3 Aims of Control Levels**

Control levels should:

- Highlight variations between the conceptual model (that is, assumed behaviour) and observed conditions;
- Identify unambiguous adverse trends that are indicative of leachate impacts;
- Allow for variation in natural water quality from baseline conditions;
- Give sufficient time to take corrective or remedial action before Trigger Levels are breached.

#### **8.1.4 Deriving Control Levels**

Control levels must be set for all landfills. However, no one method of deriving such levels may be applicable for all landfills owing to different site circumstances. Consequently, levels must be set that are appropriate for each individual landfill and its local setting.

Control levels should be set for each parameter for which a Trigger level has been set but they may be derived for additional parameters if this aids effective management and control at a site. Control levels should allow the site operator and the environmental authority to identify at an early stage, if the landfill's performance is deviating from its design performance, as assumed within the conceptual model. They should give an early warning that allows action to be taken by the operator to avoid more serious pollution.

The approach taken to derive Control levels or List I and List II substances is likely to differ and appropriate methods are described below.

List I substances are prohibited from entering the groundwater. Since the Trigger levels for List I substances will generally be very low, it is unlikely to be practicable to derive Control levels for these substances in groundwater that can be measured by analytical methods.

Control levels should be set for relevant parameters at a point that represents a significant deviation from the assumed values incorporated within the conceptual model. For example if leachate is assumed to have a concentration of a List I substance no greater than 250ug/l, it would be appropriate to set Control levels at concentrations 10%, 20% and 50% higher. Increasing levels of contingency action would be instigated at each point. Also, the trend in pollutant concentration over time should be reviewed to check whether concentrations are rising towards the values assumed within the conceptual model.

The Groundwater Regulations require that any discharge of List II substances should not be such that it does not cause pollution. Consequently an increase in the concentration of List II substances in groundwater may be acceptable so long as its impact does not cause pollution. It is normally possible to detect concentrations of List II substances in groundwater before they cause pollution.

Control levels of List II substances should be set as a concentration for a substance in the groundwater. They will typically be set at a level between the predicted concentration in groundwater and the environment assessment limit (EAL) or Trigger level.

For example, if, on the basis of a robust risk assessment model, it is predicted that the maximum concentration of ammonium in groundwater at the site boundary will be 0.2mg/l and the Trigger level is set at 0.5mg/l, then Control levels at 0.25 and 0.35mg/l could be appropriate. That is, 25% above predicted maximum and half way between predicted concentration and the Trigger level.

### **8.1.5 Deriving Trigger Levels**

Trigger levels for potentially polluting substances are to be set at the point where pollution can be said to have occurred and can be detected by monitoring. It is important to determine these at this stage of the risk assessment process as the Trigger levels should be used to demonstrate that the landfill site will not cause pollution. This means that a change in water quality to a concentration below the Trigger levels would be acceptable, but one at or above the Trigger level would be unacceptable.

There are 3 main considerations in setting Trigger levels:

- The substances for which the Trigger levels should be set;
- The levels (concentrations) at which they should be set;
- The (monitoring) locations for which they should be set.

### **8.1.6 Selection of substances for which Trigger levels are required**

Trigger levels have a role both as a performance standard for monitoring and as the success criteria for the risk assessment. The selection of substances should reflect this dual role. The important principle to apply is the need to select the minimum number of substances that are representative of the compounds present within the leachate.

Generally Trigger levels should be set for the same substances that are considered in the risk assessment, particularly where those substances are present in the highest concentrations in leachate and are most mobile in the subsurface. This will be a site-specific determination depending on the proposed waste types and the baseline water quality.

### 8.1.7 Selection of Trigger Levels

For List I substances, Trigger levels should be set at a value that represents a concentration of the substance above which it would be considered discernible in groundwater (that is after dilution in groundwater), while having regard to baseline water chemistry. That is to say, the test for pollution by List I substances is whether the discharge into groundwater is discernible. For practical purposes, the Minimum Reporting Values (MRVs) for analyses of List I substances in groundwater should be used as the Trigger level for List I substances. These should be applied at the closest monitoring points to the waste body, unless baseline groundwater chemistry exceeds these levels.

The Trigger levels should be set:

- At the MRV for List I indicator substances that are predicted to be present or detected in the leachate, but not present in the baseline water chemistry;
- At the concentration of the current baseline water quality.

Trigger levels for List II substances should be set at the most appropriate EALs, which have been determined with regard to the baseline hydrochemistry and the identified compliance points. Of course EALs may change in time, as either water quality standards or the quality of the upstream groundwater alter. However, pragmatism is required when evaluating the ongoing performance of existing phases of the site against revised EALs/Trigger levels that may have either increased or decreased.

### 8.1.8 Scenario Assessed (Document Reference: Hydrogeological Risk Assessment)

A limited number of representative List I and List II substances were modeled for the purpose of the assessment, principally as a result of their presence within leachate/condensate samples from the former Maghtab waste deposit site.

List I substances (reasons given in HGA page 28):

- Cadmium
- Naphthalene
- Toluene

List II substances (reasons given in HGA page 28):

- Ammoniacal Nitrogen
- Arsenic
- Chromium
- Copper
- Lead
- Nickel

The HGA also provides a determination of the Environmental Assessment Limits (EALs) for these substances.

For cadmium and toluene the appropriate EALs are the levels at which they become “discernible” i.e. the Minimum Reporting Values. For naphthalene, 0.01ug/l is considered to be appropriate given that there is no published Minimum Reporting Value.

With regards to List II substances, in order to determine the sensitivity of the groundwater within the vicinity of the proposed landfill and an indication of what could be regarded as “pollution”, it was considered necessary to identify the most appropriate groundwater EALs for the contaminants present within the leachate.

In order to provide the greatest level of protection, the appropriate EAL for List II substances was determined to be the most stringent applicable standard, except where background groundwater quality exceeds specified standards.

The above information together with information given in *Hydrogeological Risk Assessments for Landfills and the Derivation of Groundwater Control and Trigger Levels* (Environment Agency, UK – March 2003) were used to derive control and trigger levels for the proposed Ta' Zwejra Waste Management Facility.

Table 6: Control and Trigger levels for Ta' Zwejra Waste Management Facility

<b>SUBSTANCE</b>	<b>Minimum Reporting Value (MRV) (ug/l)</b>	<b>UK Drinking Water Standard (mg/l)</b>	<b>Maximum Concentrations in Background Groundwater (mg/l)</b>	<b>Environment Assessment Limit (EAL)</b>	<b>Concentrations in Leachate as determined in HGA (mg/l)</b>	<b>CONTROL LEVEL (At 25% increase of leachate concentration determined in HGA)</b>	<b>TRIGGER LEVEL</b>
Cadmium	0.1			0.1ug/l	$<1 \times 10^{-4}$	NA	0.1ug/l
Naphthalene				0.01ug/l	$<1 \times 10^{-10}$	NA	0.01ug/l
Toluene	4			4ug/l	$1 \times 10^{-7}$	NA	4ug/l
Ammoniacal nitrogen		0.39	0.30	0.39 mg/l	0.365	0.371 mg/l	0.39 mg/l
Arsenic		0.01	0.0017	0.01 mg/l	0.0019	0.0039 mg/l	0.01 mg/l
Chromium		0.05	0.011	0.05 mg/l	0.0105	0.020 mg/l	0.05 mg/l
Copper		2.0	0.019	2.0 mg/l	0.018	0.514 mg/l	2.0 mg/l
Lead		0.01	0.010	0.01 mg/l	0.0096	0.0097 mg/l	0.01 mg/l
Nickel		0.02	0.005	0.02 mg/l	0.0048	0.0086 mgl	0.02 mg/l



## 9.0 AMENDED LIST OF NON-HAZARDOUS WASTE TYPES TO BE ACCEPTED

EWC	Description
<b>01</b>	<b>WASTES RESULTING FROM EXPLORATION, MINING, QUARRYING, AND PHYSICAL AND CHEMICAL TREATMENT OF MINERALS</b>
<b>01 05</b>	<b>drilling muds and other drilling wastes</b>
01 05 04	freshwater drilling muds and wastes
<b>02</b>	<b>WASTES FROM AGRICULTURE, HORTICULTURE, AQUACULTURE, FORESTRY, HUNTING AND FISHING, FOOD PREPARATION AND PROCESSING</b>
<b>02 01</b>	<b>wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing</b>
02 01 01	sludges from washing and cleaning
02 01 02	animal-tissue waste
02 01 03	plant-tissue waste
02 01 04	waste plastics (except packaging)
02 01 06	animal faeces, urine and manure (inc spoiled straw), effluent, collected separately and treated off-site
02 01 07	wastes from forestry
02 01 09	agrochemical waste other than those mentioned in 02 01 08
02 01 10	waste metal
<b>02 02</b>	<b>wastes from the preparation and processing of meat, fish and other foods of animal origin</b>
02 02 01	sludges from washing and cleaning
02 02 02	animal-tissue waste
02 02 03	materials unsuitable for consumption or processing
02 02 04	sludges from on-site effluent treatment
<b>02 03</b>	<b>wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco preparation and</b>
02 03 01	sludges from washing, cleaning, peeling, centrifuging and separation
02 03 02	wastes from preserving agents
02 03 03	wastes from solvent extraction
02 03 04	materials unsuitable for consumption or processing
02 03 05	sludges from on-site effluent treatment
<b>02 04</b>	<b>wastes from sugar processing</b>
02 04 01	soil from cleaning and washing beet
02 04 02	off-specification calcium carbonate
02 04 03	sludges from on-site effluent treatment
<b>02 05</b>	<b>wastes from the dairy products industry</b>
02 05 01	materials unsuitable for consumption or processing
02 05 02	sludges from on-site effluent treatment
02 05 99	wastes not otherwise specified
<b>02 06</b>	<b>wastes from the baking and confectionery industry</b>
02 06 01	materials unsuitable for consumption or processing
02 06 02	wastes from preserving agents
02 06 03	sludges from on-site effluent treatment
<b>02 07</b>	<b>wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)</b>
02 07 01	wastes from washing, cleaning and mechanical reduction of raw materials
02 07 02	wastes from spirits distillation
02 07 03	wastes from chemical treatment
02 07 04	materials unsuitable for consumption or processing
02 07 05	sludges from on-site effluent treatment

<b>EWC</b>	<b>Description</b>
<b>03</b>	<b>WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURNITURE, PULP, PAPER AND CARDBOARD</b>
<b>03 01</b>	<b>wastes from wood processing and the production of panels and furniture</b>
03 01 01	waste bark and cork
03 01 05	sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04
<b>03 02</b>	<b>wastes from wood preservation</b>
03 02 99	wood preservatives not otherwise specified
<b>03 03</b>	<b>wastes from pulp, paper and cardboard production and processing</b>
03 03 01	waste bark and wood
03 03 02	green liquor sludge (from recovery of cooking liquor)
03 03 05	de-inking sludges from paper recycling
03 03 07	mechanically separated rejects from pulping of waste paper and cardboard
03 03 08	wastes from sorting of paper and cardboard destined for recycling
03 03 09	lime mud waste
03 03 10	fibre rejects, fibre-, filler- and coating-sludges from mechanical separation
03 03.11	sludges from on-site effluent treatment other than those mentioned in 03 03 10
<b>04</b>	<b>WASTES FROM THE LEATHER, FUR AND TEXTILE INDUSTRIES</b>
<b>04 01</b>	<b>wastes from the leather and fur industry</b>
04 01 01	fleshings and lime split wastes
04 01 02	liming waste
04 01 05	tanning liquor free of chromium
04 01 07	sludges, in particular from on-site effluent treatment free of chromium
04 01 08	waste tanned leather (blue sheetings, shavings, cuttings, buffing dust) containing chromium
04 01 09	wastes from dressing and finishing
<b>04 02</b>	<b>wastes from the textile industry</b>
04 02 09	wastes from composite materials (impregnated textile, elastomer, plastomer)
04 02 10	organic matter from natural products (for example grease, wax)
04 02 15	wastes from finishing other than those mentioned in 04 02 14
04 02 17	dyestuffs and pigments other than those mentioned in 04 02 16
04 02.20	sludges from on-site effluent treatment other than those mentioned in 04 02 19
04 02.21	wastes from unprocessed textile fibres
04 02.22	wastes from processed textile fibres
<b>05</b>	<b>WASTES FROM PETROLEUM REFINING, NATURAL GAS PURIFICATION AND PYROLYTIC TREATMENT OF COAL</b>
<b>05 01</b>	<b>wastes from petroleum refining</b>
05 01 10	sludges from on-site effluent treatment other than those mentioned in 05 01 09
05 01 13	boiler feedwater sludges
05 01 14	wastes from cooling columns
05 01 16	sulphur-containing wastes from petroleum desulphurisation
05 01 17	bitumen
<b>05 06</b>	<b>wastes from the pyrolytic treatment of coal</b>
05 06 04	waste from cooling columns
<b>05 07</b>	<b>wastes from natural gas purification and transportation</b>
05 07 02	wastes containing sulphur
<b>06</b>	<b>WASTES FROM INORGANIC CHEMICAL PROCESSES</b>
<b>06 03</b>	<b>wastes from the MFSU of salts and their solutions and metallic oxides</b>
06 03 14	solid salts and solutions other than those mentioned in 06 03.11 and 06 03 13
06 03 16	metallic oxides other than those mentioned in 06 03 15
<b>06 05</b>	<b>sludges from on-site effluent treatment</b>

<b>EWC</b>	<b>Description</b>
06 05 03	sludges from on-site effluent treatment other than those mentioned in 06 05 02
<b>06 06</b>	<b>wastes from the MFSU of sulphur chemicals, sulphur chemical processes and desulphurisation</b>
06 06 03	wastes containing sulphides other than those mentioned in 06 06 02
<b>06 09</b>	<b>wastes from the MFSU of phosphorous chemicals and phosphorous chemical processes</b>
06 09 02	phosphorous slag
06 09 04	calcium-based reaction wastes other than those mentioned in 06 09 03
<b>06.11</b>	<b>wastes from the manufacture of inorganic pigments and opacifiers</b>
06.11 01	calcium-based reaction wastes from titanium dioxide production
<b>06 13</b>	<b>wastes from inorganic chemical processes not otherwise specified</b>
06 13 03	carbon black
<b>07</b>	<b>WASTES FROM ORGANIC CHEMICAL PROCESSES</b>
<b>07 01</b>	<b>wastes from the manufacture, formulation, supply and use (MFSU) of basic organic chemicals</b>
07 01 12	sludges from on-site effluent treatment other than those mentioned in 07 01.11
<b>07 02</b>	<b>wastes from the MFSU of plastics, synthetic rubber and man-made fibres</b>
07 02 12	sludges from on-site effluent treatment other than those mentioned in 07 02.11
07 02 13	waste plastic
07 02 15	wastes from additives other than those mentioned in 07 02 14
<b>07 03</b>	<b>wastes from the MFSU of organic dyes and pigments (except 06.11)</b>
07 03 12	sludges from on-site effluent treatment other than those mentioned in 07 03.11
<b>07 04</b>	<b>wastes from the MFSU of organic plant protection products (except 02 01 08 and 02 01 09), wood</b>
07 04 12	sludges from on-site effluent treatment other than those mentioned in 07 04.11
<b>07 05</b>	<b>wastes from the MFSU of pharmaceuticals</b>
07 05 12	sludges from on-site effluent treatment other than those mentioned in 07 05.11
07 05 14	solid wastes other than those mentioned in 07 05.13
<b>07 06</b>	<b>wastes from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics</b>
07 06 12	sludges from on-site effluent treatment other than those mentioned in 07 06.11
<b>07 07</b>	<b>wastes from the MFSU of fine chemicals and chemical products not otherwise specified</b>
07 07.12	sludges from on-site effluent treatment other than those mentioned in 07 07.11
<b>08</b>	<b>WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, SEALANTS AND PRINTING INKS</b>
<b>08 01</b>	<b>wastes from MFSU and removal of paint and varnish</b>
08 01.12	waste paint and varnish other than those mentioned in 08 01.11
08 01 14	sludges from paint or varnish other than those mentioned in 08 01.13
08 01 18	wastes from paint or varnish removal other than those mentioned in 08 01 17
08 01.20	aqueous suspensions containing paint or varnish other than those mentioned in 08 01 19
<b>08 02</b>	<b>wastes from MFSU of other coatings (including ceramic materials)</b>
08 02 01	waste coating powders
<b>08 03</b>	<b>wastes from MFSU of printing inks</b>
08 03.13	waste ink other than those mentioned in 08 03.12
08 03 15	ink sludges other than those mentioned in 08 03 14
08 03 18	waste printing toner other than those mentioned in 08 03 17
<b>08 04</b>	<b>wastes from MFSU of adhesives and sealants (including waterproofing products)</b>
08 04 10	waste adhesives and sealants other than those mentioned in 08 04 09
08 04.12	adhesive and sealant sludges other than those mentioned in 08 04.11
<b>09</b>	<b>WASTES FROM THE PHOTOGRAPHIC INDUSTRY</b>
<b>09 01</b>	<b>wastes from the photographic industry</b>
09 01 07	photographic film and paper containing silver or silver compounds
09 01 08	photographic film and paper free of silver or silver compounds
09 01 10	single-use cameras without batteries

<b>EWC</b>	<b>Description</b>
09 01.12	single-use cameras containing batteries other than those mentioned in 09 01.11
<b>10</b>	<b>WASTES FROM THERMAL PROCESSES</b>
<b>10 01</b>	<b>wastes from power stations and other combustion plants (except 19)</b>
10 01 01	bottom ash, slag and boiler dust (excluding boiler dust mentioned in 10 01 04)
10 01 02	coal fly ash
10 01 03	fly ash from peat and untreated wood
10 01 05	calcium-based reaction wastes from flue-gas desulphurisation in solid form
10 01 07	calcium-based reaction wastes from flue-gas desulphurisation in sludge form
10 01 15	bottom ash, slag and boiler dust from co-incineration other than those mentioned in 10 01 14
10 01 17	fly ash from co-incineration other than those mentioned in 10 01 16
10 01 19	wastes from gas cleaning other than those mentioned in 10 01 05, 10 01 07 and 10 01 18
10 01.21	sludges from on-site effluent treatment other than those mentioned in 10 01.20
10 01.23	aqueous sludges from boiler cleansing other than those mentioned in 10 01.22
10 01.24	sands from fluidised beds
10 01.25	wastes from fuel storage and preparation of coal-fired power plants
10 01.26	wastes from cooling-water treatment
<b>10 02</b>	<b>wastes from the iron and steel industry</b>
10 02 01	wastes from the processing of slag
10 02 02	unprocessed slag
10 02 08	solid wastes from gas treatment other than those mentioned in 10 02 07
10 02 10	mill scales
10 02.12	wastes from cooling-water treatment other than those mentioned in 10 02.11
10 02 14	sludges and filter cakes from gas treatment other than those mentioned in 10 02.13
10 02 15	other sludges and filter cakes
<b>10 03</b>	<b>wastes from aluminium thermal metallurgy</b>
10 03 02	anode scraps
10 03 05	waste alumina
10 03 16	skimmings other than those mentioned in 10 03 15
10 03 18	carbon-containing wastes from anode manufacture other than those mentioned in 10 03 17
10 03.20	flue-gas dust other than those mentioned in 10 03 19
10 03.22	other particulates and dust (including ball-mill dust) other than those mentioned in 10 03.21
10 03.24	solid wastes from gas treatment other than those mentioned in 10 03.23
10 03.26	sludges and filter cakes from gas treatment other than those mentioned in 10 03.25
10 03.28	wastes from cooling-water treatment other than those mentioned in 10 03.27
10 03.30	wastes from treatment of salt slags and black drosses other than those mentioned in 10 03.29
<b>10 04</b>	<b>wastes from lead thermal metallurgy</b>
10 04 10	wastes from cooling-water treatment other than those mentioned in 10 04 09
<b>10 05</b>	<b>wastes from zinc thermal metallurgy</b>
10 05 01	slags from primary and secondary production
10 05 04	other particulates and dust
10 05 09	wastes from cooling-water treatment other than those mentioned in 10 05 08
10 05.11	dross and skimmings other than those mentioned in 10 05 10
<b>10 06</b>	<b>wastes from copper thermal metallurgy</b>
10 06 01	slags from primary and secondary production
10 06 02	dross and skimmings from primary and secondary production
10 06 04	other particulates and dust
10 06 10	wastes from cooling-water treatment other than those mentioned in 10 06 09
<b>10 07</b>	<b>wastes from silver, gold and platinum thermal metallurgy</b>
10 07 01	slags from primary and secondary production
10 07 02	dross and skimmings from primary and secondary production
10 07 03	solid wastes from gas treatment

<b>EWC</b>	<b>Description</b>
10 07 04	other particulates and dust
10 07 05	sludges and filter cakes from gas treatment
10 07 08	wastes from cooling-water treatment other than those mentioned in 10 07 07
<b>10 08</b>	<b>wastes from other non-ferrous thermal metallurgy</b>
10 08 04	particulates and dust
10 08 09	other slags
10 08.11	dross and skimmings other than those mentioned in 10 08 10
10 08.13	carbon-containing wastes from anode manufacture other than those mentioned in 10 08.12
10 08 14	anode scrap
10 08 16	flue-gas dust other than those mentioned in 10 08 15
10 08 18	sludges and filter cakes from flue-gas treatment other than those mentioned in 10 08 17
10 08.20	wastes from cooling-water treatment other than those mentioned in 10 08 19
<b>10 09</b>	<b>wastes from casting of ferrous pieces</b>
10 09 03	furnace slag
10 09 06	casting cores and moulds which have not undergone pouring other than those mentioned in 10 09 05
10 09 08	casting cores and moulds which have undergone pouring other than those mentioned in 10 09 07
10 09 10	flue-gas dust other than those mentioned in 10 09 09
10 09.12	other particulates other than those mentioned in 10 09.11
10 09 14	waste binders other than those mentioned in 10 09.13
10 09 16	waste crack-indicating agent other than those mentioned in 10 09 15
<b>10 10</b>	<b>wastes from casting of non-ferrous pieces</b>
10 10 03	furnace slag
10 10 06	casting cores and moulds which have not undergone pouring, other than those mentioned in 10 10 05
10 10 08	casting cores and moulds which have undergone pouring, other than those mentioned in 10 10 07
10 10 10	flue-gas dust other than those mentioned in 10 10 09
10 10.12	other particulates other than those mentioned in 10 10.11
10 10 14	waste binders other than those mentioned in 10 10.13
10 10 16	waste crack-indicating agent other than those mentioned in 10 10 15
<b>10.11</b>	<b>wastes from manufacture of glass and glass products</b>
10.11 03	waste glass-based fibrous materials
10.11 05	particulates and dust
10.11 10	waste preparation mixture before thermal processing, other than those mentioned in 10.11 09
10.11.12	waste glass other than those mentioned in 10.11.11
10.11 14	glass-polishing and -grinding sludge other than those mentioned in 10.11.13
10.11 16	solid wastes from flue-gas treatment other than those mentioned in 10.11 15
10.11 18	sludges and filter cakes from flue-gas treatment other than those mentioned in 10.11 17
10.11.20	solid wastes from on-site effluent treatment other than those mentioned in 10.11 19
<b>10.12</b>	<b>wastes from manufacture of ceramic goods, bricks, tiles and construction products</b>
10.12 01	waste preparation mixture before thermal processing
10.12 03	particulates and dust
10.12 05	sludges and filter cakes from gas treatment
10.12 06	discarded moulds
10.12 08	waste ceramics, bricks, tiles and construction products (after thermal processing)
10.12 10	solid wastes from gas treatment other than those mentioned in 10.12 09
10.12.12	wastes from glazing other than those mentioned in 10.12.11
10.12.13	sludge from on-site effluent treatment
<b>10.13</b>	<b>wastes from manufacture of cement, lime and plaster and articles and products made from them</b>
10.13 01	waste preparation mixture before thermal processing
10.13 04	wastes from calcination and hydration of lime
10.13 06	particulates and dust (except 10.13.12 and 10.13.13)
10.13 07	sludges and filter cakes from gas treatment

<b>EWC</b>	<b>Description</b>
10.13 10	wastes from asbestos-cement manufacture other than those mentioned in 10.13 09
10.13.11	wastes from cement-based composite materials other than those mentioned in 10.13 09 and 10.13 10
10.13.13	solid wastes from gas treatment other than those mentioned in 10.13.12
10.13 14	waste concrete and concrete sludge
<b>11</b>	<b>WASTES FROM CHEMICAL SURFACE TREATMENT AND COATING OF METALS AND OTHER MATERIALS; NON-FERROUS HYDRO METALLURGY</b>
<b>11 01</b>	<b>wastes from chemical surface treatment and coating of metals and other materials (for example</b>
11 01 10	sludges and filter cakes other than those mentioned in.11 01 09
11 01 14	degreasing wastes other than those mentioned in.11 01.13
<b>11 02</b>	<b>wastes from non-ferrous hydrometallurgical processes</b>
11 02 03	wastes from the production of anodes for aqueous electrolytical processes
11 02 06	wastes from copper hydrometallurgical processes other than those mentioned in.11 02 05
<b>11 05</b>	<b>wastes from hot galvanising processes</b>
11 05 01	hard zinc
11 05 02	zinc ash
<b>12</b>	<b>WASTES FROM SHAPING AND PHYSICAL AND MECHANICAL SURFACE TREATMENT OF METALS AND PLASTICS</b>
<b>12 01</b>	<b>wastes from shaping and physical and mechanical surface treatment of metals and plastics</b>
12 01 01	ferrous metal filings and turnings
12 01 02	ferrous metal dust and particles
12 01 03	non-ferrous metal filings and turnings
12 01 04	non-ferrous metal dust and particles
12 01 05	plastics shavings and turnings
12 01.13	welding wastes
12 01 15	machining sludges other than those mentioned in.12 01 14
12 01 17	waste blasting material other than those mentioned in.12 01 16
12 01.21	spent grinding bodies and grinding materials other than those mentioned in.12 01.20
<b>15</b>	<b>WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE</b>
<b>15 01</b>	<b>packaging (including separately collected municipal packaging waste)</b>
15 01 01	paper and cardboard packaging
15 01 02	plastic packaging
15 01 03	wooden packaging
15 01 04	metallic packaging
15 01 05	composite packaging
15 01 06	mixed packaging
15 01 07	glass packaging
15 01 09	textile packaging
<b>15 02</b>	<b>absorbents, filter materials, wiping cloths and protective clothing</b>
15 02 03	absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02
<b>16</b>	<b>WASTES NOT OTHERWISE SPECIFIED IN THE LIST</b>
<b>16 01</b>	<b>end-of-life vehicles from different means of transport (including off-road machinery) and wastes from</b>
16 01.12	brake pads other than those mentioned in 16 01.11
16 01 16	tanks for liquefied gas
16 01 17	ferrous metal
16 01 18	non-ferrous metal
16 01 19	plastic
16 01.20	glass
16 01.22	components not otherwise specified

<b>EWC</b>	<b>Description</b>
<b>16 02</b>	<b>wastes from electrical and electronic equipment</b>
16 02 14	discarded equipment other than those mentioned in 16 02 09 to 16 02.13
16 02 16	components removed from discarded equipment other than those mentioned in 16 02 15
<b>16 03</b>	<b>off-specification batches and unused products</b>
16 03 04	inorganic wastes other than those mentioned in 16 03 03
16 03 06	organic wastes other than those mentioned in 16 03 05
<b>16 08</b>	<b>spent catalysts</b>
16 08 01	spent catalysts containing gold, silver, rhenium, rhodium, palladium, iridium or platinum (except 16 08 07)
16 08 03	spent catalysts containing transition metals or transition metal compounds not otherwise specified
16 08 04	spent fluid catalytic cracking catalysts (except 16 08 07)
<b>16.11</b>	<b>waste linings and refractories</b>
16.11 02	carbon-based linings and refractories from metallurgical processes others than those mentioned in 16.11 01
16.11 04	other linings and refractories from metallurgical processes other than those mentioned in 16.11 03
16.11 06	linings and refractories from non-metallurgical processes others than those mentioned in 16.11 05
<b>17</b>	<b>CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)</b>
<b>17 05</b>	<b>soil (including excavated soil from contaminated sites), stones and dredging spoil</b>
17 05 04	soil and stones other than those mentioned in 17 05 03
17 05 06	dredging spoil other than those mentioned in 17 05 05
17 05 08	track ballast other than those mentioned in 17 05 07
<b>17 06</b>	<b>insulation materials and asbestos-containing construction materials</b>
17 06 04	insulation materials other than those mentioned in 17 06 01 and 17 06 03
<b>17 08</b>	<b>gypsum-based construction material</b>
17 08 02	gypsum-based construction materials other than those mentioned in 17 08 01
<b>19</b>	<b>WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION/INDUSTRIAL USE</b>
<b>19 01</b>	<b>wastes from incineration or pyrolysis of waste</b>
19 01 02	ferrous materials removed from bottom ash
19 01.12	bottom ash and slag other than those mentioned in 19 01.11
19 01 14	fly ash other than those mentioned in 19 01.13
19 01 16	boiler dust other than those mentioned in 19 01 15
19 01 18	pyrolysis wastes other than those mentioned in 19 01 17
19 01 19	sands from fluidised beds
<b>19 02</b>	<b>wastes from physico/chemical treatments of waste (including dechromatation, decyanidation,</b>
19 02 03	premixed wastes composed only of non-hazardous wastes
19 02 06	sludges from physico/chemical treatment other than those mentioned in 19 02 05
19 02 10	combustible wastes other than those mentioned in 19 02 08 and 19 02 09
<b>19 03</b>	<b>stabilised/solidified wastes</b>
19 03 05	stabilised wastes other than those mentioned in 19 03 04
19 03 07	solidified wastes other than those mentioned in 19 03 06
<b>19 04</b>	<b>vitrified waste and wastes from vitrification</b>
19 04 01	vitrified waste
<b>19 05</b>	<b>wastes from aerobic treatment of solid wastes</b>
19 05 01	non-composted fraction of municipal and similar wastes
19 05 02	non-composted fraction of animal and vegetable waste
19 05 03	off-specification compost
<b>19 06</b>	<b>wastes from anaerobic treatment of waste</b>
19 06 04	digestate from anaerobic treatment of municipal waste
19 06 06	digestate from anaerobic treatment of animal and vegetable waste

<b>EWC</b>	<b>Description</b>
<b>19 07</b>	<b>landfill leachate</b>
19 07 03	landfill leachate other than those mentioned in 19 07 02
<b>19 08</b>	<b>wastes from waste water treatment plants not otherwise specified</b>
19 08 01	screenings
19 08 02	waste from desanding
19 08 05	sludges from treatment of urban waste water
19 08.12	sludges from biological treatment of industrial waste water other than those mentioned in 19 08.11
19 08 14	sludges from other treatment of industrial waste water other than those mentioned in 19 08.13
<b>19 09</b>	<b>wastes from the preparation of water intended for human consumption or water for industrial use</b>
19 09 01	solid waste from primary filtration and screenings
19 09 02	sludges from water clarification
19 09 03	sludges from decarbonation
19 09 04	spent activated carbon
19 09 05	saturated or spent ion exchange resins
<b>19 10</b>	<b>wastes from shredding of metal-containing wastes</b>
19 10 01	iron and steel waste
19 10 02	non-ferrous waste
19 10 04	fluff-light fraction and dust other than those mentioned in 19 10 03
19 10 06	other fractions other than those mentioned in 19 10 05
<b>19.11</b>	<b>wastes from oil regeneration</b>
19.11 06	sludges from on-site effluent treatment other than those mentioned in 19.11 05
<b>19.12</b>	<b>wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising)</b>
19.12 01	paper and cardboard
19.12 02	ferrous metal
19.12 03	non-ferrous metal
19.12 04	plastic and rubber
19.12 05	glass
19.12 07	wood other than that mentioned in 19.12 06
19.12 08	textiles
19.12 09	minerals (for example sand, stones)
19.12 10	combustible waste (refuse derived fuel)
19.12.12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19.12.11
<b>19.13</b>	<b>wastes from soil and groundwater remediation</b>
19.13 02	solid wastes from soil remediation other than those mentioned in 19.13 01
19.13 04	sludges from soil remediation other than those mentioned in 19.13 03
19.13 06	sludges from groundwater remediation other than those mentioned in 19.13 05
<b>20</b>	<b>MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES)</b>
<b>20 01</b>	<b>separately collected fractions (except 15 01)</b>
20 01 10	clothes
20 01.11	textiles
20 01.30	detergents other than those mentioned in.20 01.29
20 01.41	wastes from chimney sweeping
<b>20 02</b>	<b>garden and park wastes (including cemetery waste)</b>
20 02 01	biodegradable waste
20 02 02	soil and stones
20 02 03	other non-biodegradable wastes
<b>20 03</b>	<b>other municipal wastes</b>
20 03 01	mixed municipal waste
20 03 02	waste from markets



<b>EWC</b>	<b>Description</b>
20 03 03	street-cleaning residues
20 03 04	septic tank sludge
20 03 06	waste from sewage cleaning
20 03 07	bulky waste

## 10.0 ORGANISATIONAL CHART

