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EGYPTIAN REFINING COMPANY  
ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT  
ERC HYDRO-CRACKING COMPLEX PROJECT AT MOSTOROD

APPENDIX 12.4 – WASTE MANAGEMENT PLAN

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# ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

ERC Hydro-Cracking Complex Project at Mostorod  
FINAL VERSION

## Appendix 12.4 – Waste Management Plan

51287-1

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### Infrastructure and Environment

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## **1. INTRODUCTION**

### **1.1 Purpose**

The objective of the Waste Management Plan (WMP) is to define waste management procedures to ensure that waste is stored and disposed of in accordance with legal national requirements, International and European Financial Institution standards, and ERC's requirements and commitments. As described in Chapter 12, the final version of the WMP will be prepared by the Contractor around the time of mobilising to Egypt. However, a preliminary draft WMP is presented here to enable a clear understanding of the approach and content of the Plan. At mobilisation, the Contractor will prepare all the necessary proforma, inspection procedures, waste licenses and consignment notes in discussion with and as required by EEAA and other relevant Regulators. At this early stage, information is not finalized for treatment of the various waste streams and their recycling or final disposal options and facilities that will be used by the Contractor. Similarly, information is not available on the waste segregation and storage facilities (waste yards) that will be established on each of the sites.

However, it is also the intention of the Contractor to prevent or if this is not possible to minimise the generation of waste, and where this is not practical, to recycle or re-use wastes where cost effective schemes exist.

The Contractor operates Environmental Management Systems in accordance with the Korean Standards Association (KSA)/ ISO 14000 principles and requirements (refer to Appendix 9 and 14 for additional details). Subsequently, in order to maintain certification, the Contractor must show a continuous improvement in reducing their impact on the environment, including that impact associated with its Waste Management activities.

### **1.2 Scope**

The Waste Management Plan provides guidance relating to all activities undertaken by the Contractor in implementing this Project, which are likely to result in waste arisings. All wastes and unwanted materials arising from the works shall be disposed of in accordance with the company Waste Management Plan, EEAA and ERC requirements.

The final plan will cover:

- Waste Management Licence and exemption requirements.
- Procedures for the segregation and storage of waste on site.
- Disposal of waste to Registered Carriers.
- Premises notification for production of hazardous waste.
- Waste documentation.



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- Checking and monitoring of final waste disposal arrangements.
- Arrangements for the storage and disposal of Hazardous Wastes.

Herbicides are not covered by this plan - disposal of any waste herbicides shall be the responsibility of any relevant specialist contractor. It is very unlikely that herbicides will be used in this project due the site conditions)

### **1.3 Responsibilities**

#### **Project Director/Project Managers**

The Project Director/Project Managers are specifically responsible for:

- Overall responsibility for ensuring that the Project prepares and implements the Project Environmental Management Plan together with any Procedures and Method Statements and complies with all legislative and contract requirements.
- Representing matters relating to the Project with ERC, Project Management Consultants and the Regulatory Authorities.
- Ensuring sufficient resources (people time and money) to plan, execute and monitor environmental aspects of the contract, specifically the management of waste.
- Co-operating with internal and external audits of waste management; deciding and implementing appropriate actions resulting from environmental audits, environmental incidents and complaints.
- Managing of relationships between the Contractor, external environmental organisations/agencies and the general public.

#### **Environmental Control Supervisor**

The Environmental Control Supervisor is site-based and specifically responsible for:

- Ensuring that line management is aware of their obligations and responsibilities. Co-ordinating all environmental input to the Project.
- Preparation and maintenance of the Project Environmental Management Plan (PEMP) and Waste Management Plan.
- Ensuring the Waste Management Plan, Procedures and Instructions are in place and complied with national legislation and International and European Financial Institution requirements.



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- Liaison with ERC, EEAA, waste contractors, Statutory & Non-Statutory Authorities and Third Parties on all waste matters.
- Liaison on a day-to-day basis with Project Management and in particular the Construction Department at the work face.
- Carrying out Weekly Site Inspections and waste management awareness.
- Development and provision of induction training and tool box talks.

**Yard Supervisor(s)**

- Ensuring Construction Site Bases (North and South Plots and Laydown areas) are kept clean and tidy at all times, as is practicable.
- Ensuring waste is properly segregated, clearly labelled, and sent to the appropriate licensed disposal site according to the WMP.
- Ensuring all drums, cages and skips are labelled with the type of waste they contain, are kept in good condition and fitted with secondary containment and/or covers where required.
- Contacting appropriate licensed contractors to arrange timely removal of waste containers and ensuring the contents are correctly described on Transfer Notes.

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## **2. PROCEDURE**

### **2.1 Definitions of Waste**

#### **2.1.1 Waste**

The legal definition of waste is:

*“Any substance or object which the producer discards or intends or is required to discard”.*

The legal definition of waste also covers substances or objects, which fall out of the commercial cycle or out of the chain of utility. In particular, most items, which are sold or taken off-site for recycling, are wastes, as they require treatment before they can be re-sold or re-used.

In practical terms, wastes include surplus spoil, scrap, recovered spills, unwanted surplus materials, broken, worn-out, contaminated or otherwise spoiled plant, equipment and materials.

#### **2.1.2 Controlled Waste**

Controlled waste is waste, which is governed by the legislation covering the storage, treatment and disposal of wastes. All the waste to be produced by the Contractor is considered to be Controlled Waste.

#### **2.1.3 Hazardous Waste**

Hazardous Wastes (HW) are wastes listed as ‘hazardous’ in the Decree No. 673 (1999), issued by the Ministry of Petroleum, which has defined hazardous substances in the petroleum sector. Indicative typical Project wastes generated together with their European Waste Code (EWC) codes are listed in Section 2.3.11. In accordance with Law 4/1994, a National Classification System for HW was developed, and waste is identified as hazardous on the basis of four main characteristics: Ignitibility, Corrosiveness, Reactivity and Toxicity.

## **2.2 LEGAL FRAMEWORK**

There are a large number of Acts and Executive Regulations covering waste management in Egypt including either technical and/or legal procedural requirements. These include the following:

- Law 38 of 1967 is the main legislation relating to solid waste management (SWM) in Egypt. Ministry of Housing Decree 134 of 1968 implements Law No. 38 for 1967. It defines specifications and locations of dumping places, and methods of treatment (e.g. dumping, composting and incineration). It was amended by Law No. 31 of 1976.
- Law 10 of 2005 prescribes the waste collection fees, procedures for collection of waste and penalties.

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- Articles 37 and 39 of Environment Law 4/94, and articles 38-41 from its executive regulations prescribe solid waste management and related technical issues.
  - Annex 11 of the executive regulations determines the specifications and conditions of disposal sites and their minimum distance from city/residential areas.
  - Waste or debris resulting from excavation, demolition and construction works should be transported in special containers licensed for this purpose (Article 41 from the executive regulation)
- Articles 29 to 32 from environment law 4/94 and articles 28 and 29 from its executive regulation, prescribe the management of hazardous waste including the permits required and the procedures for the handling, collection, transport, temporary storage, treatment and permanent storage of hazardous wastes. Also included are EEA policies and protocols concerning solid and hazardous waste
- Decree No. 673 (1999), issued by the Ministry of Petroleum, has defined hazardous substances in the petroleum sector.
- Waste procedures include for the maintenance of a waste management logbook that identifies all solid and hazardous wastes produced, details of any contractors used for treatment and disposal and a summary of the methods used to dispose of waste.

### **2.2.1 Duty of Care**

The Duty of Care states that anyone in possession of waste must:

- Prevent illegal disposal, treatment or storage of waste and prevent the escape of wastes.
- Ensure that each waste is correctly described
- Ensure transfer to an authorised person.
- Provide an accurate written description of the waste in order to facilitate the compliance of others with the Duty and avoidance of environmental offences. A compulsory system of Controlled Waste Transfer Notes will control the transfer of waste between the contractor and the waste contractor or any other parties.
- All those subject to the Duty should confirm conformance by others "in the chain" to the requirements of the Duty to an extent which is "reasonable in circumstances". All breaches of the Duty should be reported to the competent authority and/or EEA.

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### **2.2.2 Registration of Carriers**

In accordance with Law 4/1994<sup>1</sup> hazardous waste will only be transported by operators who possess a transport permit and in vehicles that are appropriate and carry the necessary safety equipment. The hazardous waste transport systems include the internationally accepted approach of chain of custody, in the form of a Hazardous Waste Manifest, in which multiple copies of the documentation are produced for use during the transport and disposal of the waste. All other requirements will be adhered to, including driver competence and training, signage and transport routing restrictions. A Project system for the registration of carriers and also specific procedures will be developed by the Contractor in consultation with the competent authorities.

### **2.2.3 Waste Management Licensing**

Law 4/1994 and article 38 from its executive regulations require sites where waste is processed, treated or disposed to hold a valid Waste Management Licence (WML) issued by a competent administrative authority.

### **2.2.4 Hazardous Waste and Premises Notification**

Certain wastes are classified as hazardous because they have higher hazards such as toxic, flammable, etc. In accordance with Law 4/1994 the Hazardous Materials and Wastes Management and Control in Egypt, article 29 it is forbidden, without a permit from the competent administrative authority, to handle hazardous substances and wastes. Article 29 of Law 4/1994's executive regulations determines the procedures and conditions for granting such a license and the authority concerned. Article 28 of its executive regulations also stipulates the procedures to be followed for the storage, transportation and final disposal of hazardous waste, which includes the requirement for licensing of disposal facilities.

Different categories of hazardous wastes and hazardous and non hazardous waste must not be mixed (unless appropriately authorised). Hazardous waste must be accompanied by a consignment note which must include the premises details.

### **Disposal of hazardous waste - WAC (Waste Acceptance Criteria)**

The 'co-disposal' of Hazardous Waste and Non-Hazardous Waste in landfill sites is not acceptable. Each type of Hazardous Waste must be disposed of at a landfill site that is authorised to accept it, such as the Alexandria Hazardous Sanitary Landfill "Nassreya". Some landfill sites that are classified as non-hazardous may be able to take certain stable non-reactive Hazardous Wastes if they have appropriately engineered separate cells on site. A landfill site authorised to accept

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<sup>1</sup> Egyptian Environmental Affairs Agency (EEAA) (1994): Environmental Protection Law (Law 4/ 1994), Cabinet of Ministers, Egypt.



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Hazardous Waste will not automatically be able to take all types of Hazardous Waste. Different types of Hazardous Waste may only be accepted at a Hazardous Waste landfill if the license or permit allows it, if certain waste acceptance criteria (WAC) can be met and if the landfill operator is prepared to accept it.

Hazardous Waste needs to be pre-treated before it can be landfilled. The treatment should take into account the limit values set by the landfill site's WAC. If after treatment the limit values of the landfill's WAC are exceeded, the waste will need to be further treated prior to acceptance for disposal at landfill.

## **2.3 WASTE MANAGEMENT PROCEDURE**

### **2.3.1 Identification of Potential Wastes**

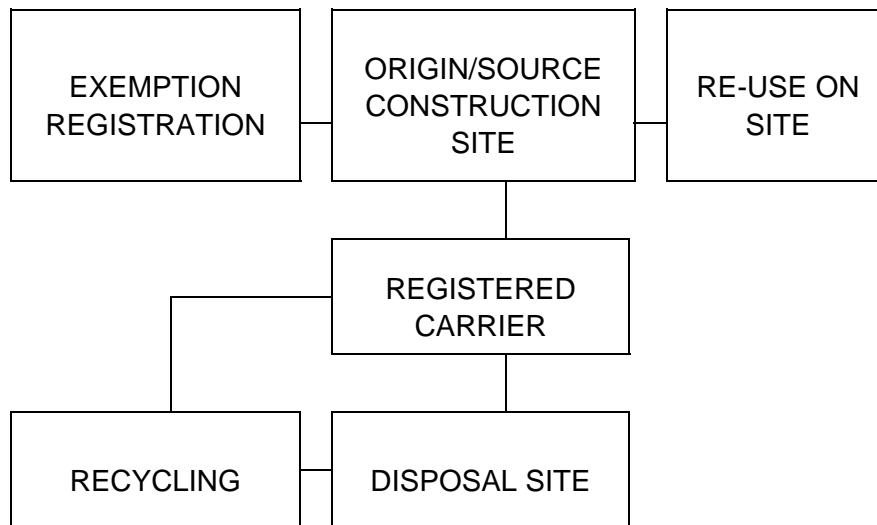
An indication of the types of waste and the waste stream is given below.

<b>Waste</b>	<b>Treatment</b>	<b>Waste carrier</b>	<b>Disposal/processing site</b>
Paper	Recycled		
Cardboard	Recycled		
Drinks cans	Recycled		
Plastic	Recycled		
Organic Waste	Composted / Landfilled		
Used spill kits / oily rags	Treated and land filled		
Spoil - uncontaminated	Spread over land / landfill		
Spoil - contaminated	Treatment and landfill		
Empty paint/coating tins	Treatment and landfill		
Rope	Recycled		
Printer/toner cartridges	Recycled		
Septic tank waste	Treatment		
Scrap Metal			

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This table shall be updated to include new wastes being produced.

**2.3.2 Schematic of Waste Disposal Procedure**



**2.3.3 Exemption Registration**

The Contractor shall ensure that the requirement for Waste Management Licences for waste management activities involving the sorting, processing, treatment or storage of waste is checked with the competent authority and EEAA and any necessary exemptions registered, as required.

**2.3.4 Waste Storage**

The Contractor shall ensure that waste produced on the site base is stored securely so as to prevent the generation of water and groundwater pollution, theft and vandalism. The waste storage area shall be sited in a secure area to minimise the risk of damage by site traffic and shall be a minimum of 10m from surface drains and watercourses.

If waste is generated at locations with no waste yard, it shall be placed in clear heavy duty plastic bags that shall be collected and returned to the site base waste yard every day. Hazardous Waste shall be double bagged and labelled with the contents.

Skips or containers provided by the waste management contractor shall be used to segregate the waste as appropriate to its disposal requirements. This is expected to be as follows:

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A	Construction Waste
B	Scrap Metal
C	Plastics
D	Paper and cardboard
E	Hazardous Waste

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Provision for further segregation shall be made if there are efficient alternative methods of recycling or disposal. Separate arrangements shall be made for waste oil drum storage in a bunded area or on spill pallets.

Covered skips or containers shall be used where necessary to prevent waste escaping and ingress of water. Skips and containers shall be labelled adequately to enable correct segregation. Hazardous waste containers shall be fitted with lockable lids and kept locked. Terminals of lithium batteries shall be kept taped to prevent accidental discharge.

**No waste shall be burnt on site or at the site base.**

### **2.3.5 Surplus material**

Surplus material arising from the Project may be given to 3<sup>rd</sup> parties at their request subject to any Planning and/or EEA restrictions.

### **2.3.6 Registered Carrier**

The Contractor shall ensure that all hauliers appointed for waste collection and transport are registered carriers. Copies of their Certificates of Registration shall be obtained, checked with the competent authority, and maintained at the site office.

### **2.3.7 Recycling**

The Contractor shall investigate the opportunities for the recycling of materials and implement those which prove practical and cost-effective.

### **2.3.8 Disposal Sites**

Waste generated shall be disposed of via a registered waste carrier to:

- Licensed landfill site eg 'Abu Zaabal' (Figure 2-1)
- Licensed treatment, transfer, reclamation or storage plant
- Licensed incineration plant

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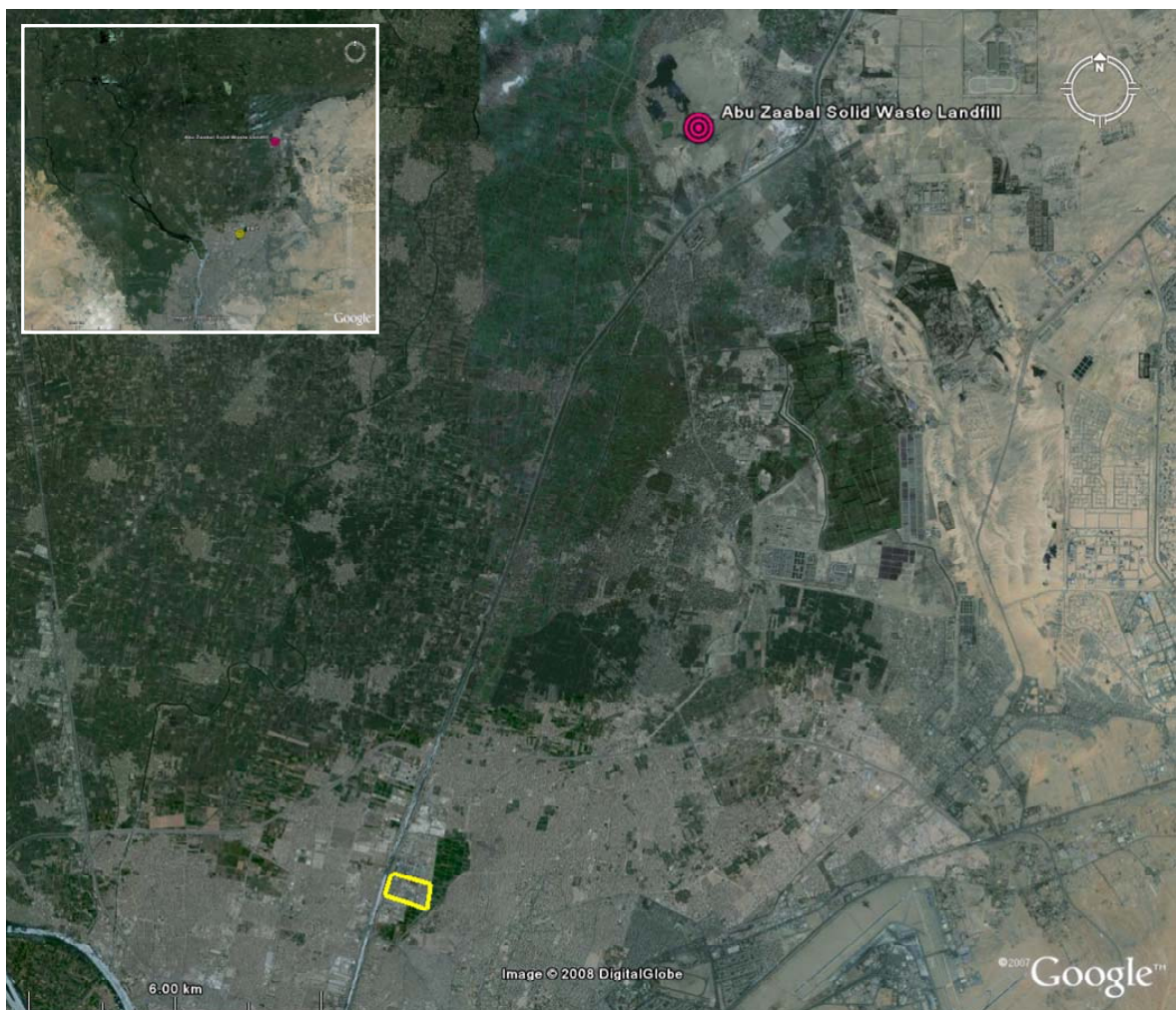
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- Site exempt from the need for a licence

The Contractor shall check with the competent authority/EEAA that all disposal sites to be used are licensed to receive the type and quantity of waste to be disposed. Certain disposal sites may have identification numbers assigned. These numbers are disposal authorisation numbers that must appear on official documents, e.g. drivers consignment note, route sheet.

Unless a carrier is able to produce official documents quoting the relevant number/appropriate details he may not be permitted to use the facility. The Contractor shall ensure that the appropriate representatives of haulage companies are made fully aware of any such requirements.

**Figure 2-1 Abu Zabel site and ERC location**



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### **2.3.9 Waste Documentation**

The Contractor shall ensure that an adequate description of the waste to be transferred is included on the Controlled Waste Transfer Note (CWTN).

CWTNs shall be completed for all wastes, except Hazardous Wastes, disposed off-site. Where possible, “season tickets” shall be used - these enable a single CWTN to cover multiple disposals for up to one year as long as all the details included on the CWTN remain the same.

The Contractor shall maintain a register of all CWTNs and Hazardous Waste Consignment Notes - on completion of construction the CWTNs are held for at least two years as required under the Duty of Care. Hazardous Waste Consignment Notes shall be kept for a minimum period of three years.

A system of recording types and quantities of waste recovered from site shall be approved with the Client subsequent to discussion.

The Hazardous Waste consignment notes (Register) must be implemented to comply with Article 33 of Law 4/1994. It must include the following information:

- Name and address of the establishment;
- Name of person responsible for filling out the Register and his position;
- Period covered by the current data;
- Any special conditions issued by EEAA;
- A list of the types and quantities of hazardous/dangerous waste resulting from the activity of the establishment;
- Method of disposal;
- Parties contracted to receive the hazardous waste;
- Date on which the form is filled;
- Signature of person in charge

### **2.3.10 Monitoring and Auditing**

The Contractor shall undertake periodic checks to confirm that waste is being disposed of to the sites listed on the CWTN and Hazardous Waste Consignment Notes. External checks and audits are also anticipated by Financers’ representatives.

Monitoring shall be undertaken by the Environmental Co-ordinator/Designated Person and particular care shall be taken to prevent windblown rubbish spreading to areas outside the boundaries of the site. Regular checks shall also be carried out to ensure waste is properly segregated.



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**2.3.11 Waste Catalogue**

This table shows a list of waste categories and the relevant EWC Code; an asterisk denotes hazardous materials:

**A**

Absorbents, filter materials, wiping cloths, protective clothing contaminated by dangerous substances	15 02 02*
Acids	20 01 14*
Adhesives containing organic solvents or other dangerous substances	08 04 09*
Aerosol degreasers	11 01 13*
Alkalies	20 01 15*
Anaerobic sealant	08 04 09*
Antifreeze fluids containing dangerous substances	16 01 14*
Anti seize agents	14 06 03*
Asbestos (contained in construction materials)	17 06 05*
Asbestos (contained in insulation materials)	17 06 01*

**B**

<b>Batteries</b>	
- Alkaline	20 01 34
- Lead	20 01 33*
- Ni – Cd	20 01 33*
- Lithium	20 01 34
- Mercury containing batteries	20 01 33*
- Zinc carbon	20 01 34
Bituminous mixtures containing coal tar	17 03 01*
Bituminous mixtures not containing coal tar	17 03 02



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**C**

Cardboard – packaging material only	15 01 01
Cardboard/ recycling paper mix	20 01 01
Concrete	17 01 01
Contaminated land	17 05 03*

**D**

De lcers	14 06 03*
Diesel	13 07 01*

**E**

Electrical and electronic equipment which contains hazardous components other than those included under 20 01 21 (fluorescent tubes) and 20 01 23 (equipment containing CFCs)	20 01 35*
Electrical and electronic equipment other than those included under 20 01 21 (fluorescent tubes) and 20 01 23 (equipment containing CFCs) and 20 01 35	20 01 36

**F**

Furniture (bulky non hazardous)	20 03 07
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**G**

Gas leak detection fluid	07 01 01*
Garden waste (biodegradable/ vegetable matter only)	20 02 01
General waste	20 03 01
Glue – see adhesives	
Grit blast	08 01 17*

**J**

Jizer (degreaser)	11 01 13*
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**M**

Mercury	06.04.04*
Metal waste contaminated with dangerous substances arising from construction or demolition activities	17 04 09*
Metals – mixed, uncontaminated	17 04 07
Mono ethylene glycol (MEG)	16 03 05*

**O**

<b>Waste Oils</b>	
- Hydraulic oil containing PCBs	13 01 01*
- Hydraulic oil (mineral based, chlorinated)	13 01 09*
- Hydraulic oil (mineral based, non chlorinated)	13 01 10*
- Hydraulic oil (synthetic)	13 01 11*
- Hydraulic oil (readily biodegradable)	13 01 12*
- Hydraulic oil (any other not listed above)	13 01 13*
- Engine, gear and lubricating oils – mineral based, chlorinated	13 02 04*
- Engine, gear and lubricating oils – mineral based, non chlorinated	13 02 05*
- Engine, gear and lubricating oils – synthetic	13 02 06*
- Engine, gear and lubricating oils – readily biodegradable	13 02 07*
- Engine, gear and lubricating oils – other	13 02 08*
- Insulating and heat transmission oils – containing PCBs	13 03 01*
- Insulating and heat transmission oils – mineral based, chlorinated other than those covered by 13 03 01*	13 03 06*
- Insulating and heat transmission oils – mineral based, non chlorinated	13 03 07*
- Insulating and heat transmission oils – synthetic	13 03 08*
- Insulating and heat transmission oils – readily biodegradable	13 03 09*





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- Insulating and heat transmission oils – other	13 03 10*
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**P**

Paint – solvent based	08 01 11*
Paint –water based	08 01 12
Paint – Servi wrap primer	08 01 11*
Paper and cardboard	20 01 01
Pesticides	See Herbicides
Petrol	13 07 02*
Pipeline wrappings (coal tar)	17 06 03*
Plastic	17 02 03
Plastic – contaminated	17 02 04*
Protective clothing (contaminated by dangerous substances)	15 02 02*

**R**

Refrigerators/ freezers containing chlorofluorocarbons	20 01 23*
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**S**

Sealant (foam kits) containing organic solvents or other dangerous substances	08 04 09*
All other sealants	08 04 10
Holder tank sludge (oily waste)	13 08 99*
Septic tank sludge	20 03 04
Separator waste (contents of oil/ water separators)	13 05 08*
Soil & stones containing dangerous substances	17 05 03*
Soil and stone (uncontaminated)	17 05 04



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Soldering paste/ flux	06 04 05*
Solvents	20 01 13*
Spoil – containing dangerous substances	17 05 03*
Spoil – other than 17 05 03*	17 05 04

**T**

Timber pallets	15 01 03
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**W**

<b>Waste Water</b>	
Water (contaminated bund)	16 10 01*
Weedkiller	See herbicides
WD40	14 06 03
Wood	17 02 01