16.
TWO DOCS.

CARRIGALINE AREA FOR A SAFE ENVIRONMENT
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Co Cork

Submission on Behalf of Carrigaline Area for a Safe Environment to Environmental Protection Agency Oral Hearing, 14th February, 2005

Re/ Determination of Proposed Waste Licence (reg No 186 – 1) Issued to Indaver Irl, Ringaskiddy, Co Cork by the Environmental Protection Agency, October 26th, 2004

Carrigaline Area for a Safe Environment (CASE) wish to make this submission in conjunction with our written submission seeking an Oral Hearing.

In our written submission we referred to the EPA mandate which is:

'To protect and improve the natural environment for present and future generations, taking into account environmental, social, and economic principals of sustainable Development.' (EPA Website, November 2004)

Therefore the EPA has a duty and a responsibility under its mandate to protect the influences surrounding and affecting the development of all residents – present and future adults, children and babies – of Cork Harbour.

Building an incinerator in the proposed Ringaskiddy site does not support the stated mandate, and building an incinerator at this stage, before intensive waste prevention and full recycling principals and safer, more modern residual treatments have been implemented does not conform to the principle of sustainable development.

- CASE seeks reimbursement of costs under Article 6 of the European *Convention on Human Rights*.
- CASE requests the withdrawal of the two premature draft licences given to Indaver by the E.P.A. plus the introduction of a Moratorium on the introduction of Mass Burn Incineration into Ireland so the many alternatives coming on line everyday can be tried and tested, in conjunction with Clean Production.
- Ireland is in the lucky position of being clean and green, staying that way is our future not hosting the kind of dirty Industry that follows the introduction of Toxic/Hazardous Mass Burn incineration into a country.

Later those charged with protecting Ireland, but instead took the 'quick fix' route under the cloak of immunity may find rules change when those coming behind us want to know why their heritage is a polluted mess.

Ireland is too small for Mass Burn Incineration.

We object to the use of technology that is not Best Available Technology (BAT) and of a disposal method that is no longer Best Practice (BP) and outline Alternatives Below.

ALTERNATIVES

Firstly, a comprehensive solution to our hazardous waste problems must include demands on Industry and Government and the relevant Regulatory Authorities for waste reduction and clean production – a stop or phasing out of hazardous waste and so therefore a good alternative non-burn technology to incineration is one that will only be used temporarily and/or as a final resort.

Many of the past planning proposals for HWI (Hazardous Waste Incineration) were specifically to do with disposal of stockpiles of difficult wastes e.g. PCB, chemical weapons, pesticides, POPs etc. As we in Ireland have no such stockpiles and no great heavy, dirty industry to speak of, there is little justification for this proposal to speak of.

There are numerous examples of opposition groups changing the course of policy makers in relation to incineration as a treatment option.

One example is in Idaho US where local environmental opposition groups threatened to sue the Dept of Energy in the US in 1999 over the plans to build 2 incinerators treating mixed low-level radioactive waste -some of it as a stockpile material.

An out of court settlement was reached whereby the Dept of Energy agreed to reconsider its plans and created a panel of experts to investigate emerging alternative technologies to incineration for this mixed waste. So far seven promising technologies have been put forward and are at present undergoing through evaluation.

Again in the US, in response to a public outcry against incineration as a means of disposal of chemical weapons, Congress mandated a program to identify and evaluate alternatives for this waste in 1996. With the result that in 2000 the US EPA issued a comprehensive report to the Dept of Defense assessing the applicability of non-burn technologies for this waste stream. This program was fully endorsed by the UN FAO and the UNEP. (UN Food & Agriculture Organization)

The latest information to come out from this research program was the announcement in March 2002 of the US Dept of Defense choice of treatment for its stockpiles of mustard agents which was a water neutralization-bioremediation technology.

This is an example of implementation of the BATNEEC principle in that this was the 'best available technology' and also the more 'cost-effective' approach, as on implementation it was also discovered to be more cost-effective than incineration.

Such non-burn technologies include:

- Biodegradation
- Electrochemical Oxidation. (Silver II and Ceric Oxide)
- Gas phase chemical reduction-GPCR

- Supercritical Water Oxidation
- Wet Air Oxidation
- Alkaline hydrolysis

***Gas Phase Chemical Reduction** for a Variety of Wastes*

To date commercial GPCR (Gas Phase Chemical Reduction) technology has been developed and patented, and it has been tested and evaluated by the USEPA. Commercial, full-scale stationary units are in operation in Australia and Ontario, Canada plus portable demonstration units are in operation in Japan, Canada and the US.

The process can effectively treat a variety of liquid wastes, chlorinated or non-chlorinated and is also effective for a variety of matrices including soil, sediment, sludges, waste oils, watery wastes and bulk solids.

This technology is currently under review by the UN for POP destruction and the Department of Defense for chemical waste destruction.

***Alkaline Hydrolysis** for Meat & Bonemeal Waste*

Meat and Bonemeal waste is a big national problem costing millions in storage and disposal overseas and a waste which Indaver intend to burn in Ringaskiddy. Favoured for its high calorific value, there is a highly effective alternative to incinerating meat and bonemeal.

The alternative to incineration of this type of material is an alkaline digestion process called Alkaline Hydrolysis. This is most effective for bovine waste i.e. meat and bone-meal and animal by-products, hospital anatomical waste and chemotherapy waste. The alkaline also destroys fixatives in this type of waste e.g. formaldehyde or Glutaraldhyde.

The process involves the waste loaded into an hermetically seals unit and alkaline added proportionate to the amount of waste (alkaline being– Sodium hydroxide or potassium hydroxide). Digestion is then carried out at 110°C and 100psi and can take up to 3-6 hours for completion.

Units can vary in size (14kg – 3,500 kg). By-products are biodegradable i.e. bones and teeth which are sterile, and an aqueous solution of peptide chains, amino acids, sugars, soaps and because the process hydrolyses proteins BSE infected material and any infectious material i.e. prions can also be safely degraded.

Due to concern about incineration of this type of waste, the EU Scientific Steering Committee actually conducted a study into this means of disposal. The report was finalized last Nov 2003 with a seal of approval. **Incineration by contrast has never being scientifically validated as a disposal method**. Alkaline Hydrolysis is the preferred method of disposal by veterinary colleges in the UK and the USA to date. This treatment can also be coupled to an Anaerobic digester.

3

***Liquefaction** for Plastics*

Currently the Japanese are engaged in liquefaction of plastics back to their original petrochemical state (i.e. fuel grade oil). The Corporation involved in this project is made up of the Japanese Government Industrial Development Lab; Mobil Oil Corp and Fuji Recycle, with recent engineering developments supplied by Nippon Steel and the Clean Japan Centre.

Plastics which can be treated/liquefied are Polyethylene , Polypropylene and polystyrene. Exceptions to this process are PVC or any high Specific Gravity plastics. New catalysts patented by Mobil oil to facilitate in the catalytic process can also render this process useful for the recycling of rubber.

Liquefaction has the advantage over incineration of being commercially viable at lower quantities. In addition these systems can also be built on a modular basis, which means they can be built for current demand, and added to later if demand increases, while remaining cost effective.. Plants processing 5000tns/yr are currently operating in Japan together with a number of smaller units.

Orders have been placed by a Portuguese company for 10 liquefaction plants, with the first deliveries taking place January 2004. Portugal like Ireland has no commercial incineration capacity.

***Centralised Anaerobic Digestion** for Agricultural Waste*

Since Indaver intend to burn some sludges a viable alternative to this is CAD Centralised Anaerobic Digestion. This is an established mature technology with full-scale implementation and experience in countries like Sweden, Denmark, Italy, Belgium and other northern hemisphere EU countries.

The benefits include the production of a biogas to be used for CHP (Combined Heat and Power) plant, liquid fertilizer and a fibre compost material. CAD also satisfies the criteria of 'Waste to Energy'.

As well as managing farm waste CAD had the added advantage of processing all sludges, abattoir waste and bio-wastes which cannot be composted. With the introduction of IPC licensing for pig slurry CAD is the best and most sustainable solution as it satisfies the criteria for sustainable energy, prevents eutrophication of lakes and rivers and is best practice for nutrient management.

The *EPA report No 16 Feasibilility Study* for Centralised Anaerobic Digestion of various wastes and wastewaters in sensitive catchment areas Final Report 2002 indicated three counties as potential sites for CAD, of which Cork County is included, due to farming practices and generation of potential feedstock.

Currently the EPA have declared it a win-win solution for farmng, our Kyoto targets and the environment in a recent report, *Anaerobic Digection: Benefits for Waste Management, Agriculture, Energy and the Environment.*

A.3 Waste Acceptance: Incineration Plant

Fluidised Bed Incineration Plant Maximum annual quantity to be accepted shall not exceed: 100,000 tonnes.			
Waste Type	**European Waste Catalogue (EWC) Note1**	**DESCRIPTION**	**Nominal Tonnes per Annum**
Hazardous Waste			
Waste oil	13 00 00	Oil and fuel wastes.	45
Oil filters	15 02 12 16 01 07	Waste Oil filter.	5
Oil/sand mixtures or mixtures of oil and other material	13 05 01 15 05 08 15 02 02	Mixtures from grit chambers and oil/water separators.	20
Wood preservation waste	03 00 00	Waste from wood processing and production and processing of pulp, paper and cardboard.	10
Wastes from petroleum refining, natural gas purification and pyrolytic treatment of coal	05 00 00	Waste oils, tars and sludges from refining operations.	20
Wastes from inorganic chemical processes	06 00 00	Inorganic chemical process waste including spent activated carbon.	900
Wastes from organic chemical processes	07 00 00	Wastes from the MFSU of organic chemicals including chlorinated/non-chlorinated solvents and aqueous washing liquids.	40,000
Agrochemical wastes	02 01 08	Obsolete products and off specification batches.	100
Infectious Healthcare Waste Healthcare Waste	18 01 01 18 01 02 18 01 03 18 01 04 18 02 01 18 02 02 18 02 03 18 00 00	Wastes from the treatment, diagnosis or prevention of disease in animals or humans.	100
Paint, inks, adhesives and resins	08 01 00 08 03 00	Waste paint, inks and aqueous ink/paint solutions.	800
Waste packaging, absorbents, filters and protective clothing	15 00 00	Hazardous packaging, filters, absorbents and protective clothing.	2,000
Off specification batches containing organic or inorganic wastes	16 03 03 16 03 05	Waste pharmaceutical products.	2,000
Commercial wastes	20 01 00	Wastes including solvents, paints, inks and medicines from industries and institutions.	2,000
Sludges from physio-chemical treatment plants	19 02 05	Sludges containing dangerous substances.	2,000

Non-Hazardous Waste			
BIODEGRADABLE WASTE			
Wood and wood products	20 01 38		
Paper and paper products	20 01 01		
Vegetable Matter	20 01 08		
Non-infectious health-care waste	18 01 04 18 02 01 18 02 03		
Street cleaning residues	20 03 03		
Gully emptyings	20 03 99		
Septic tank sludge	20 03 04		
Food stuffs	02 00 00		
Vegetable oil	20 01 25		
Oil and fat	20 01 26		
Animal faeces, urine and manure (including spoiled straw) effluent, collected separately and treated off-site	02 01 06		
Animal blood	18 02 03		
Sludges from treatment of urban waste water	19 08 05		
Sludges from physico/chemical *treatment other than* those mentioned in 19 02 05	19 02 06		
Wastes from aerobic treatment of solid waste	19 05 00		
Wastes from aerobic treatment of waste	10 06 00		
Wastes from the preparation and processing of meat, fish and other foods of animal origin	02 02 02		
End of life tyres	16 01 03		
Other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	19 12 12		

Meat & Bone.

Moving Grate Incineration Plant	
Maximum annual quantity to be accepted shall not exceed: 100,000 Tonnes.	
Waste Type	**European Waste Catalogue (EWC)**
Wood and wood products	20 01 38
Paper and paper products	20 01 01
Vegetable Matter	20 01 08
Non-infectious health-care waste	18 01 04 18 02 01 18 02 03
Street cleaning residues	20 03 03
Gully emptyings	20 03 99
Septic tank sludge	20 03 04
Food stuffs	02 00 00
Vegetable oil	20 01 25
Oil and fat	20 01 26
Animal faeces, urine and manure (including spoiled straw) effluent, collected separately and treated off-site	02 01 06
Animal blood	18 02 03
Residual Municipal Waste [Notes 1 & 2]	20 03 01
Sludges from treatment of urban waste water	19 08 05
Sludges from physico/chemical treatment other than those mentioned in 19 02 05	19 02 06
Wastes from aerobic treatment of solid waste	19 05 00
Wastes from aerobic treatment of waste	10 06 00
Animal-tissue waste	02 02 02
End of life tyres	16 01 03
Other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	19 12 12

Note 1: Household waste (as well as commercial and other waste, which because of its nature or composition, is similar to household waste) that, in so far as is practicable, has been pre-sorted or segregrated to remove reusable and recyclable materials.

Note 2: Residual Municipal waste may also be incinerated in the fluidised bed incinerator after the moving grate incinerator has commenced operations.

Fluidized Bed Plant			
Waste type		**Alternative treatment**	
Waste oils		Remediation & filtration, centrifugal filtration, re-cycled as lower grade oils. Bio fuel	
Oil Filters		Recovery, re-use	Sustainable landfill.
Oil Sand mixtures		Separation and recovery	
Wood preservation wastes		GPCR Gas phase Chemical Reduction/Base Catalysed Dechlorination Re-use. Low grade solvents	Clean Production
Wastes from petroleum refining, natural gas purification, and pyrolytic treatment of coal		GPCR Gas Phase Chemical Reduction. SWO Supercritical Water Oxidation	Clean Production
Wastes from inorganic chemical processes		Electrochemical Oxidation-Cerium or Silver 11.	Clean Production
Wastes from organic chemical processes		Recovery abroad Solvent Recovery GPCR	Clean Production
Agrochemical wastes, obsolete products etc		Anaerobic digesters,	Chemical treatments, autoclaving Clean Production
Infectious medical, healthcare waste		Alkaline hydrolysis, autoclaving, microwaving	Sustainable landfill
Paints, inks, adhesives and resins		Electrochemical oxidation- Silver 11 or Cerium	Prevention, substitution, Clean production
Waste packaging, absorbants, filters		Substitution, regeneration	Product substitution,

and protective clothing			redesign
Off spec. batches containing organic or inorganic wastes		**GPCR**	
Commercial wastes, solvents paints , inks		GPCR ,SWO	Clean production
Sludges from physiochemical treatment plants		Wet Air Oxidation, Hydrolysis	
Non hazardous waste			
Wood or wood products, paper products		Recycling, remediation,	
Vegetable matter		Composting/ Wormeries/ CAD	
Non infectious healthcare waste		Alkaline hydrolysis, Anaerobic digestion	
Street cleaning residues		Sewers	
Gulley emptying		Sewers, Wet Air Oxidation, CAD	
Septic tank sludge		Anaerobic digester,	
Food stuffs		Composting, wormeries, Anaerobic digester (AD)	
Veg oil, oil and fat		Filtration- Low Grade Bio-Fuel	
Animal faeces, urine and manure, spoiled straw, effluent, collected separately off site		AD, composting,	
Sludges from treatment of urban wastewater		Anaerobic Digestion	
Sludges from physico/chemical treatment		Anaerobic Digestion	

Wastes from aerobic treatment of solid wastes			Landfill (inert)
Wastes from aerobic treatment of wastes			Landfill (Inert)
Wastes from preparation of meat , fish and other foods or animal origin (M+BM)		Alkaline hydrolysis	
End of like types		Recycle, crumb rubber	
Other wastes ??			

A.2 Waste Acceptance: Waste Transfer Station / STORAGE.

Maximum annual quantity to be accepted shall not exceed: 15,000 tonnes.

Waste Type	European Waste Catalogue (EWC) Note1	DESCRIPTION
Waste oil	13 01 00 13 02 00 13 03 00 13 05 00 13 07 00	All waste oils including, hydraulic oils, oil/water mixtures and waste fuels
Oil filters	16 01 07	Oil filters from cars and machinery/plant.
Asbestos	17 06 01 17 06 05	Insulation materials and construction materials containing Asbestos
Oil/sand mixtures or mixtures of oil and other material	17 05 03	Soil containing fuel oil, diesel and other dangerous substances.
Wood preservation waste	03 02 00	Organic and inorganic wood preservative wastes
Wastes from petroleum refining, natural gas purification and pyrolytic treatment of coal	05 01 00	Waste from Petroleum refining.
Wastes from inorganic chemical processes	06 01 00 06 02 00 06 03 00 06 04 00 06 05 00 06 13 00	Wastes from MFSU of acids, bases, salts, metallic oxides including spent activated carbon
Wastes from organic chemical processes	07 01 00 07 02 00 07 03 00 07 04 00 07 05 00 07 06 00 07 07 00	Wastes from MFSU of organic chemicals, plastics, dyes, pharmaceuticals, soaps and detergents
Agrochemical wastes	02 01 05	Waste chemicals for the treatment of animals. Examples include sheep dip and louse powder.
Infectious Healthcare Waste	18 01 00 18 02 00	Wastes from the treatment, diagnosis or prevention of diseases in animals or humans.
Photographic processing waste	09 01 99	Solid and liquid waste from the photographic industry.
Paint, inks, adhesives and resins	08 01 00 08 03 00 08 04 00	Obsolete paints and inks and paint related material.
Batteries and accumulators	16 06 01	Lead Batteries.
Florescent tubes and other mercury containing waste	20 01 21	Fluorescent tubes and other mercury containing waste.
Wastes from the mining industry	01 01 00 01 03 00	Wastes from mineral excavation and from the physical and chemical processing of minerals.
Meat and bone meal	02 02 02	Meat and bone meal/ specified risk material from the rendering of animals.
Other Agricultural and food processing wastes	02 01 00 02 02 00 02 03 00 02 04 00	Materials unsuitable for consumption or processing or other wastes from the dairy or food processing industries.

CLEAN PRODUCTION and ZERO WASTE

With respect to the real-time generation of toxic waste the current practice of clean production and toxic use reduction strategy programs goes a long way towards reduction and the eventual phase-out of process and product waste.

An example of this is Massachusetts US whereby a participatory program between industry involving some 1,000 firms and community activists to reduce toxic waste, led to the implementation of mandatory pollution prevention legislation called the TURA act (Toxic Use Reduction Act).

This program of 'Clean Production' which started in the early 90's is still on-going with technical assistance and training being provided by the TURI Institute (Toxic Use Reduction Institute) at Lowell University Massachusetts. This initiative is funded by state and industry. The success of this program led to the considerable reduction in process and product waste coupled with financial gain to industry and the overall defeat of three planned incinerators in the state. To date the success of the program has led to a reduction in:

- **toxic byproducts by 69%,**
- **toxic chemical use by 45%,**
- **quantities of toxics shipped in product by 60%,**
- **on-site releases of toxics to the environment by 92%, and**
- **transfers of toxics off-site for further waste management by 58%.**

Traditionally, four facets of Clean Production have been recognized:

- ***Precaution***
  Manufacturers carry the burden of showing that their practices are safe for workers, residents or others who might be affected.
- ***Prevention***
  There is no need to find a cure for a disease that does not exist. Similarly, if we can avoid the production of hazardous waste materials then we have no need to find ways of destroying or storing such wastes.
- ***Democracy***
  True integration of a clean production model is impossible without input from workers, consumers and communities.
- ***Holism***
  The environmental and economic impacts of industry ripple far beyond the communities they reside in. We must be able to consider all of these impacts when we design and implement manufacturing processes.

With respect to the Ringaskiddy proposal the main strategies to implement in reducing toxic/hazardous waste should include a comprehensive study demonstrating best practicable environmental option (BPEO) for toxic/hazardous waste, with the main

criteria being sustainability, economic basis, and legislative initiatives for source reduction. It would entail the implementation of the following:

Implement Mandatory pollution prevention-start on a county wide basis and work up to a national implementation strategy. .

Enforce Clean Production practice where practicable combined with mandatory pollution prevention. Such an initiative must be funded by state and industry. This results in economic gain to participants and a decrease in process and product waste. Example is the Toxic Use Reduction Act in Massachusetts US.

Community right to know - Establish a TRI (Toxic Release Inventory) database to satisfy public access to information. This can be modeled on the OECD initiative on Pollutant Release and Transfer Registers (PRTR).

Product and Process re-design-Some examples in the Pharmachem industry would be change-over to solvent less extraction systems, replacement of organic solvents for aqueous systems, use of single cleaning solvents as opposed to multi-solvent systems and segregation of halogenated and non-halogenated solvents.

To assist in the above, increased legislative regulatory encouragement and/or incentive combined with a programme of technical assistance needs to be enforced. (More funding for and more Clean Technology Centers required to provide technical training to implement Clean Production particularly for SME's)

Centralized remediation facility. For fractions which exist after source reduction and clean production has being implemented the examination of proprietary non-burn technologies (preferably) as a final disposal option for **segregated** toxic waste streams. This depends on critical mass of the respective waste. Separation into aqueous wastes, organic solvents, filter cakes, spent catalysts, sludges etc is essential.

This could comprise a national hazardous multi-technological treatment facility conducting some or all of the following deconstruction and reconstruction processes;

Chemical and/or electrolytic oxidation processes
Catalytic decomposition
Dehalogenation
Water removal –membranes, ion exchange, extraction, distillation
Biological treatment
Wet air oxidation/hydrolysis- a good pre-treatment for biological degradation
Carbon regeneration

An integrated, sustainable approach with strict adherence to the EU's waste hierarchy is vital in adopting the Country's Waste Management Plan. The principle of Zero Waste best integrates this philosophy as practiced in many countries.

'Zero Waste': the 5 basic Principles

1. Product, packaging and process re-design. Clean production and toxic use reduction.

Designing products for the environment and not for the dump or the incinerator eg Rank Xerox saved 76 mill dollars by reducing their waste through product redesign. This constitutes more efficient use of energy and materials.

2. **Extended Producer responsibility EPR.**

Holding manufacturers responsible for waste generation and environmental impacts. Polluter pays principle nor comsumer pays.

3. Investing in infrastructure

A call for investment in community projects i.e. Centralized Anaerobic Digestion to take place of landfill or incinerators

4. Ending subsidies for wasteful and polluting industries

Pollution, energy consumption and environmental destruction all start with virgin resource extraction, mining etc. For example the extraction of aluminium from Bauxite is a far more energy intensive practice than the recycling of aluminium cans to original material by 80% example. Recycling industry should be tax subsidized as opposed to the manufacturers industry.

5. Creating jobs and new businesses

Wasting materials in a landfill or incinerator also waste business opportunities. In a US report "wasting and recycling in the US" on a per ton basis sorting and processing recyclables alone sustains 10 times more jobs than landfilling . The report also shows that recycling based paper-mills and the recycling plastic industry employs 60 times more workers on a per ton basis than landfill or incineration

In Conclusion

CASE calls for a

- Immediate Moratorium on Incineration as a form of waste management,
- Proper evaluation of waste categories, classification and volumes,
- Mandatory pollution prevention programs with technical assistance and adequate funding for its implementation,
- Legislative initiatives to implement eco-friendly alternatives treatments to incineration.

We must move away from the old concept of burning and advance towards the practice of re-use and recycling which makes more efficient use of resources and energy.

We hold that the EPA is in blatent breach of its mandate in issuing this draft licence, object to this, and ask for a recommendation that it be revoked.

	02 05 00 02 06 00 02 07 00	
Wastes from the leather, fur and textile industries	04 01 00 04 02 00	
Inorganic wastes from thermal processes	10 01 00 10 04 01 10 11 99	Wastes from power stations and other combustion plants.
Inorganic metal containing wastes from metal treatment and the coating of metals and non ferrous hydrometallurgy	11 01 00 11 03 00 11 05 00	Wastes from the surface treatment and coating of materials and waste sludges.
Wastes from shaping and surface treatment of metals and plastics	12 01 00	Machining oils, sludges and emulsions.
Wastes from organic substances used as solvents, (other than 07 and 08)	14 06 00	Solvents and mixtures containing halogenated and non-halogenated solvents and CFCs.
Wastes packaging; absorbent, wiping cloths, filter materials and protective clothing not otherwise specified	15 01 00 15 02 00	Hazardous packaging, filters, absorbents and protective clothing.
Wastes not otherwise specified	16 02 00 10 03 00 16 05 00 16 06 00 16 07 00 16 08 00 16 09 00 16 11 00	Electrical equipment containing CFCs, televisions, off specification batches, laboratory chemicals, oxidising substances, car batteries and waste linings and refractories.
Wastes from treatment facilities, off-site waste water treatment plants and the water industry	19 19 08 19 19 09	Boiler ash, fly ash, waste from water treatment plants and wastes from the preparation of water.
Municipal wastes and similar commercial, industrial and institutional wastes including separately collected fractions.	20 01 00	Solvents, acids, alkalines, pesticides, paints, inks adhesives, resins, detergents containing dangerous substances, cytotoxic and cytostatic medicines and waste electrical and electronic equipment.
Paper and paper products	20 01 01	Waste newspapers, magazines, cardboard and other paper products.
Non-infectious health-care waste	18 01 02 18 01 04 18 02 01 18 02 03	Sharps and other non-infectious wastes from human and animal healthcare and research.
Street cleaning residues	20 03 03	
Gully emptyings	20 03 99	
Septic tank sludge	20 03 04	
Food stuffs	20 00 00	Foodstuffs unsuitable for consumption or processing.
Vegetable oil	20 01 25	Edible oils and other oils and fat.
Electronic and electrical waste	20 01 36	Non-hazardous electrical and electronic waste.
Waste from incineration or pyrolysis of municipal and similar commercial, industrial and institutional wastes	10 01 00 10 11 99	Non-hazardous residues from thermal processes.
Waste packaging absorbents, filters and protective clothing	15 01 00 15 02 00	Non-hazardous packaging, filters, absorbents and protective clothing.
Wastes from chemical surface	11 01 10	Non-hazardous sludges, filter

CASE REFRENCES.

16-02-05.

G.P.C.R. WWW.ECO-LOGIC-INTL.COM.

ELECTRO CHEMICAL OXIDATION WWW.CEROX.COM

ALKALINE HYDROLYSIS. WWW.WA2.NET + E.P.A OWN WEB-SITE.

WET AIR OXIDATION HYDROLYSIS. WWW.2IMPAD.COM

BASIE DE CHOLINATION. WWW.BCD INTERNATIONAL.COM

SUPERCRITAL WATER OXIDATION: WWW.CIA.COM/ATG/APS/SCWO

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