

## **Factors affecting future Hazardous Waste Management in Northern Ireland**

The way in which hazardous waste is managed will change significantly over the next few years, driven by a series of European Directives affecting both resource use and waste management. Among other impacts, these Directives will direct hazardous waste away from landfill, impose more stringent requirements for waste treatment and incineration and increase the number of types of waste defined as hazardous.

### ***Classification of Hazardous Waste***

The replacement of the term 'special' with 'hazardous' and the associated classification of such wastes against the European Waste Catalogue Hazardous Waste List (EWC HWL) will result in an increased range of potentially hazardous wastes being generated in Northern Ireland. The problems caused by changes to waste classification schemes are not restricted to the UK. Research across Europe has shown that a range of hazardous waste classification schemes have been used historically, with only a handful of member states fully adopting the HWL following its introduction in 1994. As a result, it has been difficult to draw any meaningful conclusions about trends in hazardous waste production across Europe.

### ***Hazardous Waste Producers***

As a result of the way in which hazardous wastes are classified, with many mirror entries in the EWC HWL, it is not possible to accurately predict exactly how many hazardous waste producers will be active as the new classification system takes effect.

## **Legislative Drivers**

### ***The EC Landfill Directive***

The Landfill Directive will deliver significant changes in the market through the imposition of controls on what has historically been the primary disposal option for hazardous wastes generated in Northern Ireland. Key issues include the banning of liquid disposal to landfill and an end to the co-disposal of hazardous and non-hazardous wastes.

There are concerns that landfills solely for hazardous waste disposal may require very long-term management and monitoring. This type of landfill is relatively new to the UK. A priority will be the period from the ending of co-disposal and requirement for treatment in July 2004.

The broad requirements of the Landfill Directive are likely to lead to hazardous waste management costs increasing in the medium to long-term. This will place economic pressure on process industry waste producers and should encourage them to increase emphasis on unit cost reduction through waste minimisation and recycling activities.

A consultation paper on implementation of the Directive is due to be published by the Department mid June 2003.

### ***The Proposed Hazardous Waste Regulations and Waste Classification Changes***

Since 1996 the Hazardous Waste List (94/904/EC)(HWL) has been recast and incorporated within the European Waste Catalogue (EWC). Classification of wastes against the EWC HWL will introduce a number of new waste streams as potentially hazardous, e.g. cathode ray tubes from televisions and personal computers. However, it is unclear to what extent the new classification will result in an overall increase in quantities of waste consigned as hazardous. Monitoring will reveal this as the changes take place.

### ***Pollution Prevention and Control (PPC)***

IPPC operates under the Pollution Prevention and Control Regulations (Northern Ireland) 2003. These Regulations have been made under the Environment (Northern Ireland) Order Part II 2002 and will eventually replace the Industrial Pollution Control (Northern Ireland) Order 1997. They implement EC Directive 96/61 on IPPC in so far as it relates to installations in Northern Ireland. Separate systems have been introduced to apply the IPPC Directive to Scotland, England and Wales and the offshore oil and gas industries. The Directive required member states to implement by 2007.

The PPC Regulations make provision for the permits to include waste minimisation and opportunities for re-use on site. This should lead to a reduction in the quantities of hazardous waste generated.

For those waste handling companies operating facilities covered by PPC, the rigorous permitting process and associated cost implications (through increased process management and engineering), will result in some re-evaluation of the economic benefits of running such facilities. In a market where margins are low, this may lead to a contraction in capacity at a time when a net increase is required.

### ***Waste Electrical and Electronic Equipment Directive (WEEE)***

The Waste Electrical and Electronic Equipment (WEEE) Directive seeks to promote the separate collection, re-use or recycling of electronic waste. The WEEE Directive requires producers to recover 75 percent of goods taken back for disposal and to re-use 70 percent of those goods. A target for the separate collection of 4kg of WEEE per inhabitant per year is to be achieved by the end of 2006.

The final text of the Directive was ratified by the European Parliament on 18 December 2002 and entered onto the EU statute book in February 2003.

Member States have 18 months to transpose the Directive into national law, with producer responsibility due to start in around March 2005.

Producer responsibility legislation such as WEEE will require increased segregation of wastes, and is likely to result in an increase in quantities of material managed as hazardous. There will be a subsequent requirement for new facilities for materials recovery and to treat and dispose of the hazardous wastes arising from that recovery.

### ***Restriction of Hazardous Substances Directive (RoHS)***

The Restriction of Hazardous Substances (RoHS) in Electrical and Electronic Equipment Directive is meant to complement the WEEE Directive by banning the use of certain hazardous substances in new electrical equipment.

The RoHS Directive will deliver a phased reduction in certain hazardous materials (lead, cadmium, mercury, hexavalent chromium, brominated flame retardants and PBB/PBDE) in the waste stream beyond 2007.

### ***End of Life Vehicles (ELV) Directive***

The End of Life Vehicles (ELV) Directive has the objective of preventing waste from ELVs and improving levels of recycling and reuse. It aims to minimise the impact of such vehicles on the environment, e.g. by reducing the amount of waste going to landfill from vehicles reaching the end of their life by:

- Introducing controls on the 'scrapping' of ELVs (by restricting treatment to authorised facilities);
- Implementing new environmental treatment standards; and
- Setting rising re-use, recycling and recovery targets.

The targets require 85 percent of ELVs to be re-used or recovered (80 percent re-used or recycled) by January 2006, and 95 percent of all ELVs to be re-used or recovered (85 percent re-used or recycled) by 2015.

A consultation document on the implementation of the Directive is due to be published in June 2003, with the final regulations expected around end 2003. The ELV Directive will encourage the limitation of hazardous materials in new vehicles in order to reduce the amount of hazardous waste eventually produced and to ease recycling. It will divert hazardous elements from mixed waste management disposal to targeted recycling and treatment.

Manufacturers are already seeking to utilise materials that are easier to recycle and there will be a long-term downward trend in unit quantities of hazardous material being used in new vehicles and consequently arising in ELVs.

### ***Batteries Directive***

The European Commission has drawn up a proposal (latest draft issued March 2003) which will require the collection and recycling of all types of batteries. The Batteries Directive will result in an increase in the number of battery waste streams and the quantities segregated for treatment / disposal. The new Directive would ban the use of mercury in batteries immediately: all batteries containing more than 5ppm of cadmium by weight are scheduled to be banned by January 2008.

### ***Waste Incineration Directive (WID)***

The Waste Incineration Directive (WID) updates the requirements of the 1989 Municipal Waste Incineration Directives and, merging them with the 1994 Hazardous Waste Incineration Directive, consolidates new and existing incineration controls into a single piece of European legislation.

WID also upgrades technical requirements to reflect technological advances, and broadens the scope of the waste incineration regime to cover wastes that were not previously regulated.

The Department issued a consultation paper in May 2003 on how it intends to implement EC Directive 2000/76/EC on the Incineration of Waste.

WID is likely to require expensive upgrading of some incinerators and plants burning wastes as fuel. The impact of the regime on market economics may inhibit some plants from burning wastes such as waste oil, raising the possibility of an increase in the illegal disposal of waste.

With limited incentives for oil recycling, the impact of the Directive is likely to be to increase the amount of waste oil entering the waste management system, at the same time as reducing the number of disposal sites. Off site treatment options for waste oils, other than recycling, include blending to make cement kiln or power station fuels. Combustion in roadstone coating plants is also a treatment option. The plants are used to dry limestone before coating it with bitumen. As a result of the Directive virgin fuel sources may replace waste oils. This will result in waste oil being primarily used when firing up coal fired power stations (where financially viable) and cement kilns. Producers of waste oil may in the future have to pay for its disposal, where as at present it has a positive value.

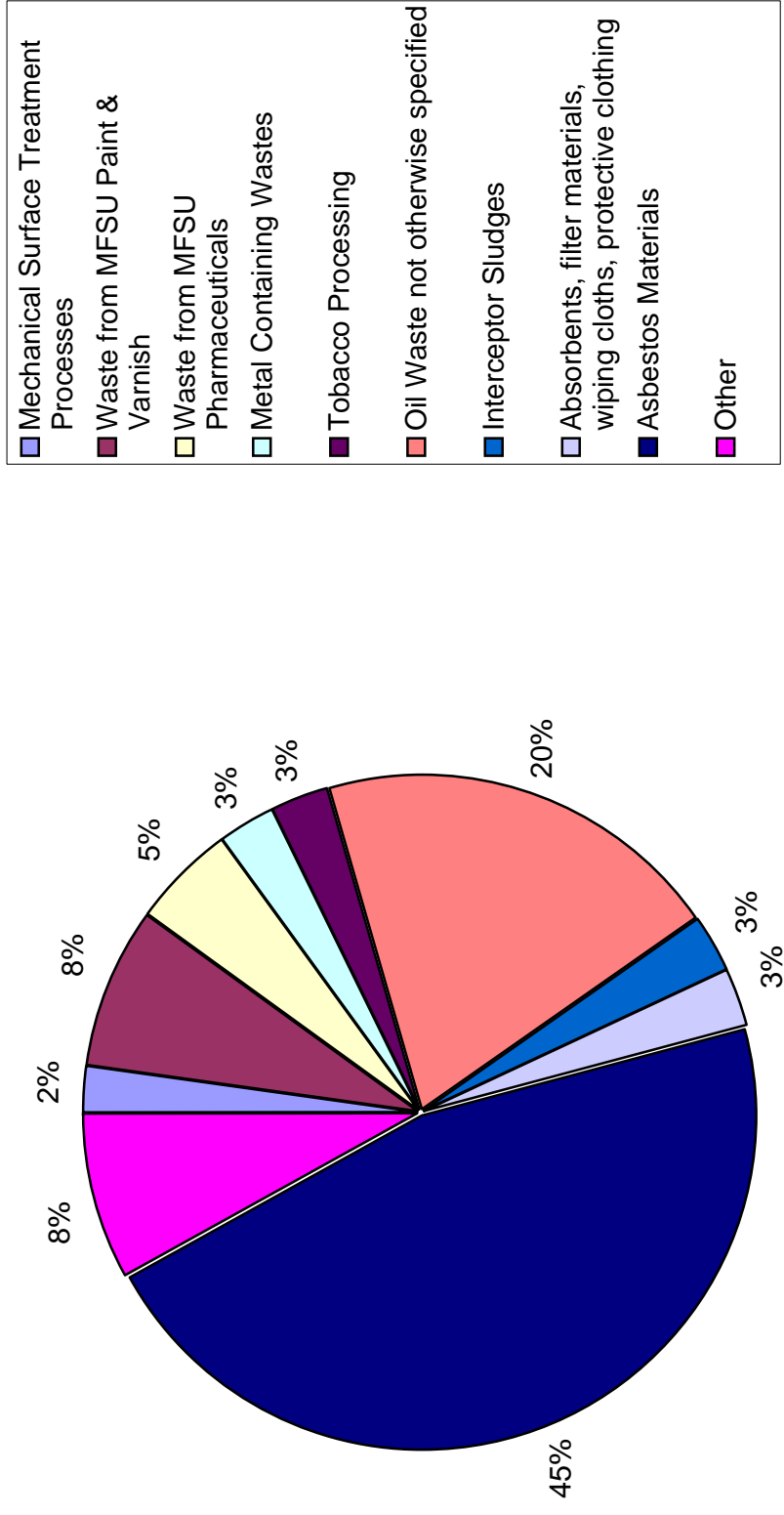
#### ***Solvent Emissions Directive (SED)***

The Solvent Emissions Directive (SED) limits the emissions of VOC's due to the use of organic solvents by certain sectors. The aim is to play a part in reducing the release of more harmful VOCs and reducing ozone pollution in the EU.

Levels of organic solvents used will drop in the period 2003 – 2007, the extent will depend on how producers respond to the pressures on VOC emissions brought about by the SED.

Legislation & Policy	Requirement	Milestones	Impact on hazardous waste management
<b>Landfill Directive</b> Ban on Hazardous liquids to landfill Hazardous solids that are explosive, corrosive, oxidising, highly flammable, infectious hospital or other clinical wastes from medical or veterinary establishments chemical substances from R & D or teaching whose effects are unknown End to hazardous waste co-disposal Waste Acceptance Criteria implementation		2003  2004 2005	Hazardous liquid wastes will require an alternative treatment/disposal outlet Hazardous solid wastes with the prescribed properties, infectious clinical/veterinary wastes and unknown substances from R & D will require alternative outlet and/or pre-treatment to an acceptance standard prior to landfill Landfill capacity available for hazardous wastes significantly reduced Implementation of the TAC WAC will determine levels of pre-treatment required and diverted wastes
<b>Hazardous Waste Regulations</b>	The proposed Hazardous Waste Regulations will result in waste being classified according to the EWC HWL, hence widening the scope of materials potentially classified as hazardous	On legislative implementation	Increased numbers of special waste producers and increased quantities of special wastes newly defined
<b>PPC</b>	The PPC Regulations create a framework to prevent and control pollution. Covering the whole installation of prescribed processes (including waste management), BAT must be applied in minimising pollution throughout the sites life cycle. PPC is being phased in by sector	2003	The requirements of PPC should reduce the hazardousness and quantities of wastes generated by producer sectors covered. Equally, the requirements on waste handling sectors may lead to reduced capacity for wastes. It will also lead to increased costs of waste treatment/disposal
<b>WEEE Directive</b>	Promotes re-use and recycling of electronic waste through producer responsibility measures. A target recovery level of 4 kg per inhabitant per year is to be achieved by the end of 2006 Linked with the requirements of the RoHS Directive (below). WEEE will ban the use of lead, cadmium mercury and hexavalent chromium in the manufacture of electrical goods as well as brominated flame retardants PBB and PBDE by July 2006	2006	Diversion of waste will increase steadily from the start of 2006, probably sooner in sectors e.g. mobile phone recycling  Despite the ban on substances having effect in mid-July, this will only start to be seen through a reduction of these hazardous materials in the waste stream in to 2007
<b>Restriction on Hazardous Substances Directive</b>	Restriction on heavy metals and brominated flame retardants in electrical and electronic equipment. Phase in 2006 for 2008	2006	Impacts consistent with those of WEEE
<b>ELV Directive</b>	New cars to be recycled without charge to owner All cars to be recycled without charge to owner. The targets require 85% of ELVs to be re-used or recovered by January 2006	2003 2006	ELV will result in a reduction in the quantities of hazardous waste produced by scrapyards and dismantling sites. Only authorised dismantlers will be permitted to operate, resulting in a possible decrease in the number and capacity of outlets for ELVs
<b>Waste Incineration Directive (WID)</b>	No Real change for hazardous wastes as these are already covered by Hazardous Waste Incineration Directive. These are implemented through IPC and IPPC	New plant 2003 Existing Plant 2006	WID may result in a reduced number of small burners e.g. space heaters in garages and roadstone plants, burning waste oil as fuel
<b>Hazardous Waste Incineration Directive (HWID)</b>	See Waste Incineration Directive – this directive has been implemented through IPC and IPPC. It will be superseded by the WID. Requirements include: Emission standards Automated shut off	2002	
<b>Solvents Emissions Directive</b>	SED limits the emissions of VOC's due to the use of organic solvents by certain sectors. IPPC will implement these requirements across many industries. Dry cleaning will need to implement. Requirements are phased in from the end of 2002	2003	Emissions of VOC's from sectors covered by SED should progressively fall over the period 2003 - 2007
<b>Batteries Directive (draft at present)</b>	Collection and recycling of all types of batteries across Europe. 75% of all consumer batteries and 55% of spent automotive lead acid and industrial batteries to be collected within 2 years of the Directive coming into force. Minimum recycling target of 55% to be met by end of 2003 No mercury batteries	2003	Reduction in quantities of batteries sent for disposal. Batteries containing mercury will no longer require an outlet

**Breakdown of Total Waste to Landfill in N.I. for Year 2002**



## Total Waste to Landfill in N.I. For Year 2002

EWC Code	Description of Waste	Tonnes
01	Mining & Minerals	0.00
02	Agricultural & Food Production	154.12
03	Wood & Paper Production	41.60
04	Leather & Textile Production	0.00
05	Petrol, Gas & Coal Refining/Treatment	0.00
06	Inorganic Chemical Processes	196.48
07	Organic Chemical Processes	276.84
08	MFSU Paints, Varnish, Adhesive & Inks	475.26
09	Photographic Industry	9.95
10	Thermal Process Waste (inorganic)	18.22
11	Metal Treatment & Coating Processes	41.56
12	Shaping/Treatment of Metals & Plastics	120.96
13	Oil & Oil/Water Mixtures	1184.85
14	Solvents	0.00
15	Packaging, Cloths, Filter Materials	150.26
16	Not Otherwise Specified	62.48
17	C&D Waste and Asbestos	2428.95
18	Healthcare	4.48
19	Waste/Water Treatment and Water Industry	2.38
20	Municipal & Similar Commercial Wastes	13.75
99	Unclassified	65.92
	<b>Total Tonnes</b>	<b>5248.06</b>